

# FLORA OF BANGLADESH

NO. 64

TILIACEAE

EDITORS

HOSNE ARA  
AND  
BUSHRA KHAN

June 2016

By  
BUSHRA KHAN,  
HOSNE ARA  
AND  
MD. MANZUR-UL-KADIR MIA

**BANGLADESH NATIONAL HERBARIUM**  
MINISTRY OF ENVIRONMENT AND FOREST  
GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH

**FLORA  
OF  
BANGLADESH**

No. 64

**TILIACEAE**

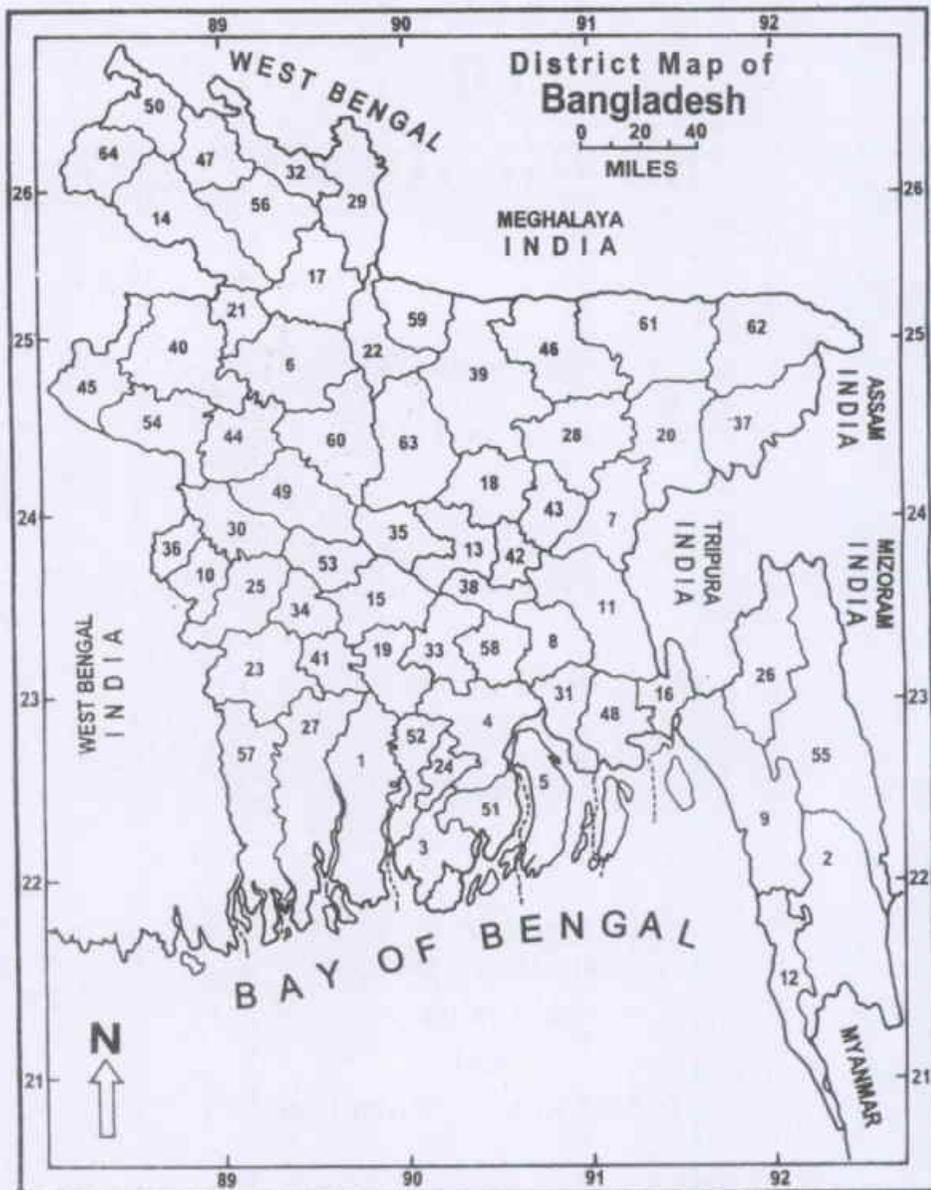
EDITORS

**HOSNE ARA  
And  
BUSHRA KHAN**

June 2016

By  
**BUSHRA KHAN,  
HOSNE ARA  
And  
MD. MANZUR-UL-KADIR MIA**

**BANGLADESH NATIONAL HERBARIUM  
MINISTRY OF ENVIRONMENT AND FOREST  
GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH**



## 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.	Maulvibazar
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

## TILIACEAE A.L. de Jussieu

**Bushra Khan, Hosne Ara & Md. Manzur-Ul-Kadir Mia**

Trees, shrubs, undershrubs, herbs or woody climber, with simple or stellate hairs or lepidote. Leaves simple, alternate, rarely opposite, base sometimes oblique, petiolate, usually palmately veined, occasionally pinnately veined, entire or dentate, rarely lobed. Stipule mostly caducous. Inflorescence axillary, terminal or leaf opposed cymes or panicles, rarely flowers solitary. Bracts caducous or sometimes large and persistent. Flowers bisexual, very rarely unisexual or both, mostly 4-5 merous, actinomorphic, hypogynous. Sepals 4-5, free or partly united, valvate, rarely imbricate. Petals 4-5, free, imbricate or valvate, rarely absent. Stamens 5-many, free or shortly connate at base, or in 5 or 10 bundles, inserted on receptacle or androgynophore; staminodes absent or present; anthers dorsifixed or basifixed, with 2-loculed, opening by a longitudinal slits or an apical and rarely a basal pore. Carpels 2-5 (-10), rarely more, syncarpous, rarely free; ovary superior, rarely inferior, sessile, 2-10 loculed; ovules 1-numerous in each locule; placentation usually axile, rarely parietal; style usually simple and divided at apex; stigma lobed or pointed, rarely sessile. Fruit usually a drupe, capsule or schizocarp, sometimes a berry or samara, 2-10 loculed with 1-many seed per locule. Seeds without aril, endosperm copious, embryo erect, cotyledons foliaceous.

The family Tiliaceae consists of about 52 genera and 500 species, widespread in tropical and subtropical regions (Tang *et al.*, 2007). In Bangladesh, this family is represented by 7 Genera and 31 species

**References cited in the text :**

- Alam, M.K. 1988. *Annotated Checklist of the Woody Flora of Sylhet Forests. Bulletin 5. Plant Taxonomy Series.* Bangladesh Forest Research Institute (BFRI), Chittagong, Bangladesh. pp. 1-153.
- Caius, J.F. 1998. *The Medicinal and poisonous Plants of India.* Scientific Publishers, Jodhpur, India. pp. 1-528.
- Daniel, P. and Chandrabose, M. 1993. *Flora of India, Vol 3.* Botanical Survey Of India, Calcutta. pp. 477-524.
- Deb, D.B. 1981. *The Flora of Tripura State, Vol. 1.* Today & Tomorrow's Printers and Publishers, New Delhi. pp. 1-509.
- Das, D.K. and Alam, M.K. 2001. *Trees of Bangladesh.* Bangladesh Forest Research Institute, Chittagong. pp. 1-342.
- Fedorov, A.A. 1969. *Chromosome Numbers of Flowering Plants.* Academy of Sciences of USSR, Moscow. pp. 1-926.
- Gamble, J.S. 1922 (2<sup>nd</sup> edition). *A Manual of Indian Timbers.* Bishen Singh Mahendra Pal Singh, Dehra Dun, India (Reprint 1984). pp. 106-686.
- Jain, S.K. 1981. *Glimpses of Indian Ethnobotany.* Oxford & IBH Publishing Co., New Delhi, India. pp. 1-242.
- Khan, B. and Mia, M.K. 2009. Tiliaceae. In: Ahmed, Z.U., Hassan, M.A., Begum, Z.N.T., Khondker, M., Kabir, S.M.H., Ahmad, M., and Ahmed, A.T.A. (eds.). *Encyclopedia of Flora and Fauna of Bangladesh, Vol. 10. Angiosperms: Dicotyledons (Ranunculaceae-Zygophyllaceae).* Asiatic Society of Bangladesh, Dhaka. pp. 378-400.
- Khatoon, S. and Ali, S.I. 1993. *Chromosome Atlas of the Angiosperms of Pakistan.* Department of Botany, University of Karachi, Pakistan. p. 28.
- Kumar, V. and Subramaniam, B. 1986. *Chromosome Atlas of Flowering Plants of the Indian Subcontinent, Vol. 1 (Dicotyledons).* Botanical survey of India, Calcutta. pp. 1-464.
- Kirtikar, K.R., Basu, B.D. and An, I.C.S. 1935 (Second Edition). *Indian Medicinal Plants, Vol. 1.* Bishen Singh Mahendra Pal Singh, Dehra Dun, India. pp. 384-403.
- Phengklai, C. 1993. *Flora of Thailand, Vol. 6, Part 1.* The Forest Herbarium, Royal Forest Department, Bangkok. pp. 10-80.

Tang, Y., Gilbert, M.G. and Dorr, L.J. (eds.). 2007. *Flora of China*, Vol. 12 (Actinidiaceae through Vitaceae). Science Press, Beijing and Missouri Botanical Garden Press, St. Louis. pp. 240-263.

#### Abbreviations used for the herbaria (other than the recognized acronyms)

ASSAM=Eastern Regional Centre, Shillong

DUSH= Dhaka University Salar Khan Herbarium

HCU= Herbarium of Chittagong University

BFRIH= Herbarium, Bangladesh Forest Research Institute

BCSIRH= Herbarium, Bangladesh Council for Scientific and Industrial Research

#### KEY TO THE GENERA

1	Fruits drupe	2
+	Fruits capsule	3
2	Style subulate	<b>Grewia</b>
+	Style ± absent	<b>Muntingia</b>
3	Capsule echinate	<b>Triumfetta</b>
+	Capsule not echinate	4
4	Capsule cocci winged	5
+	Capsule not winged	6
5	Sepals united near base, petals not glandular at base	<b>Berrya</b>
+	Sepals free, petals glandular at base	<b>Colona</b>
6	Capsule usually elongate, rarely subglobose	<b>Corchorus</b>
+	Capsule pyriform	<b>Brownlowia</b>

**Berrya** Roxb., Pl. Corom. 3: 60 (1819).

Type species: *B. ammonilla* Roxb.

Trees. Leaves spirally arranged, petioles 3.6-9.9 cm; leaf blade ovate to ovate oblong, thinly leathery, very sparsely stellate pubescent, glabrous 5-7 nerved at the base, margin entire, base cordate, apex acuminate, stipules small and caducous. Inflorescences

terminal or axillary, paniculate. Flowers many, hermaphrodite, 5-merous., free, glabrous, not glandular at the base. Calyx 3-5 lobed, united near base, hairy outside, glabrous inside. Petals free, 5, glabrous, not glandular at base. Stamens many, free, anthers dorsifixed, subglobose, opening lengthwise, staminodes absent. Ovary 3-4 locular, each locule with 2-4 ovules, style subulate, stigma lobed. Fruit a capsule, with 3 pairs of vertical wings, indehiscent. Seeds 1-2 in each locule, endosperm fleshy.

About 8 species primarily in Indo-Malaya, the Philippine Islands and Tahiti (Daniel and Chandrabose, 1993). In Bangladesh, this genus is represented by only 1 species.

**Berrya cordifolia** (Willd.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 9: 606 (1926). Back & Bakh. f., Fl. Java 1: 389 (1963); Daniel & Chandrabose, Fl. India 3: 478-479 (1993); Phengklai, Fl. Thailand 6 (1): 69-70 (1993); Tang *et al.*, Flora China 12: 261 (2007); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 379 (2009). *Espera cordifolia* Willd. in Ges. Naturf. Freunde Berlin Neue Schriften 3: 450 (1801); *Berrya ammonilla* Roxb., Pl. Corom. 3: 60, t. 264 (1819) & Fl. Ind. 2: 639 (1832); Masters in Hook. f., Fl. Brit. India 1: 383 (1874-reprint 1961); Gagnep. in Fl. Gen. 1.-C. 1: 531 (1911); Craib in Fl. Siam. En 1: 182 (1925); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); *Triopteris polyandra* Balanco, Fl. Filip.: 380 (1837); *Hexagonotheca cordata* Turcz., Bull. Soc. Nat. Moscou 19. 2: 505 (1846). **Fig. 1.**

Bengali: *Chavandalai*

English: *Trincomali Wood*

Tree, up to 35 m tall. Leaves simple, 12-25 × 4-14 cm, ovate to ovate-oblong, base cordate, apex acuminate, thinly leathery, margin undulate, stellate-pubescent when young, glabrous when mature; petioles 3.5-9.0 cm long, glabrous below, slightly stellate-pubescent above, stipules 1.0-1.5 cm long, filiform, caducous. Inflorescence terminal or axillary, 5-20 cm long, hairy. Flowers numerous, lax; buds globular; pedicels pubescent. Calyx 5, 3-5 lobed, lobes 3-5 mm long, triangular-ovate, hairy. Petals 5, white or pink, filiform, 6-8 mm long, oblong, obtuse, ultimately reflexed. Stamens numerous, inserted on a short receptacle; filaments 4-5 mm long; anthers didynamous; lobes divergent, opening lengthwise. Ovary 3-4 loculed, locules 4-ovuled, style 3 mm long, slightly papillose at the base, stigma peltate, 3-lobed. Fruit a capsule, with persistent calyx, 1-1.3 cm across, globose, pubescent; seeds 1-4 in each locule. Seeds c 6 × 3 mm, clothed with brown to yellow, caducous bristles. *Fl. & Fr.*: 3-9. *In Mansoon forest.* 2n = 40 (Fedorov, 1969).

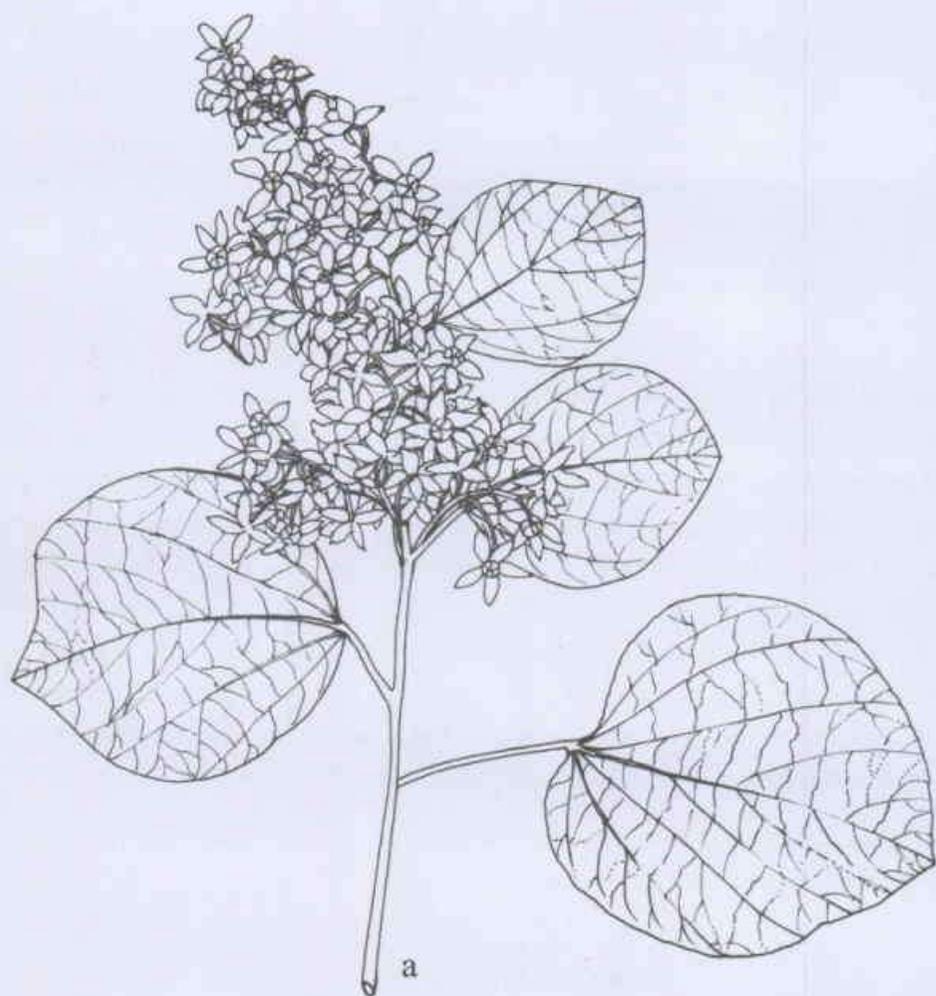


Figure 1. *Berrya cordifolia* (Willd.) Burret, a) habit sketch.

**Bagerhat:** Kotka, Sundarbans, 20 v 2011, *Sarder Nasir Uddin* N. 4655 (DACB).  
**Dhaka:** Atomic Energy Center, 7 vi 1964, *A.F. Muhammad* 161 (DUSH); Azimpur colony, 27 vi 1946, *Md. Shahjahan* (DUSH); 30 vii 1948, *S.K. Sen* (DUSH).

India, Sri Lanka, Myanmar, Thailand, Cambodia, Vietnam and Malesia.

The wood is used for building purposes, carts and agricultural implements. The hairs on fruits readily penetrate the skin and cause intense irritation. In Tamil Nadu (India), the wood is used for making masula boats (Jain, 1981).

**Brownlowia** Roxb., Pl. Corom. 3: 61 (1819).

Type species: *B. elata* Roxb.

Trees, covered with lepidote or stellate hairs. Leaves alternate, margin entire, base cordate, pinnate, 3-5 nerved from base, sometimes peltate; stipules sometimes large and foliaceous. Inflorescences paniculate, terminal or axillary. Flowers numerous, minute, in large. Sepals campanulate, 3-5 fid, united near the base, hairy outside, glabrous inside. Petals 5, free, glabrous, white or pink, spatulate or filiform, not glandular at base. Stamens numerous, free or often in 5 bundles; anthers basifixed, subglobose, opening length-wise; staminodes 5, within stamens opposite to petals, linear and subpetaloid. Ovary 5-locular; locule 2-ovuled, styles subulate; stigma pointed. Carpels ultimately separating, mature ones subglobose, thick, 2-valved, 1-seeded. Seeds non-endospermous; cotyledons thick, fleshy.

About 25 species in South and South East Asia (Phengklai 1993), and in Bangladesh the genus is represented by 2 species only

#### KEY TO THE SPECIES

- |   |   |                 |
|---|---|-----------------|
| 1 | Leaves ovate, flowers yellow, buds clavate-oblong | <b>B. elata</b> |
| + | Leaves lanceolate, flowers white, buds globose    | <b>B. tersa</b> |

**Brownlowia elata** Roxb., Pl. Corom. 3: 61 (1820); Masters in Hook. f., Fl. Brit. India 1: 381 (1874-reprint 1961); Prain, Beng. Pl. 1: 281 (1903-reprint 2004); Heinig, List Chittagong: 7 (1925); Sinclair, Fl. Cox's Bazaar 9 (2): 88 (1956); Mia & Khan in

Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 380-381 (2009); *Humea elata* Roxb., *Fl. Ind.* 2: 640 (1832). **Fig. 2.**

Bengali: *Mass, Masjot*

A lofty tree, branches spreading. Leaves 10-30 × 7-20 cm, ovate, acute, base cordate, glabrous, white beneath, sometimes peltate, petioles 7.5-10.0 cm or longer, thickened at the apex. Inflorescence terminal, as long as the terminal leaf, branches pubescent, ultimate pedicels longer than the flower. Flowers 1.2-2.0 cm across, yellow, buds clavate-oblong. Calyx c 0.5-6.0 cm long, funnel-shaped, velvety, lobes ovate, shorter than the tube. Petals oblong, spreading, tapering at the base, longer than the sepals. Stamens numerous, filaments slender, anther lobes divergent at the base, confluent at the apex, staminodes linear-lanceolate. Styles as long as the petals. Follicles 2.5-3.7 cm in diameter, by abortion solitary, obliquely ovate, woody, covered with fine ash-coloured pubescence, suture prominent. Seeds solitary, rarely 2, albumen absent, embryo erect, cotyledons 2. *Fl. & Fr.*: 6-9. *In evergreen and semi-evergreen forests.*

**Cox's Bazar:** Signal Hill, 27 viii 1943, *James Sinclair* (CAL). **Dhaka:** Dhanmondi lake side, 5 vi 1988, *Rezia Khatun* 351 (DACB); Dhanmondi, 25 ix 1997, *Mia* (DACB).

Myanmar.

The wood is soft, reddish-grey, pores moderate-sized and medullary rays are short (Gamble, 1922).

The large leaves are inter oven with bamboo sticks and made the roof of thatched houses in Cox's Bazar (Das and Alam, 2001).

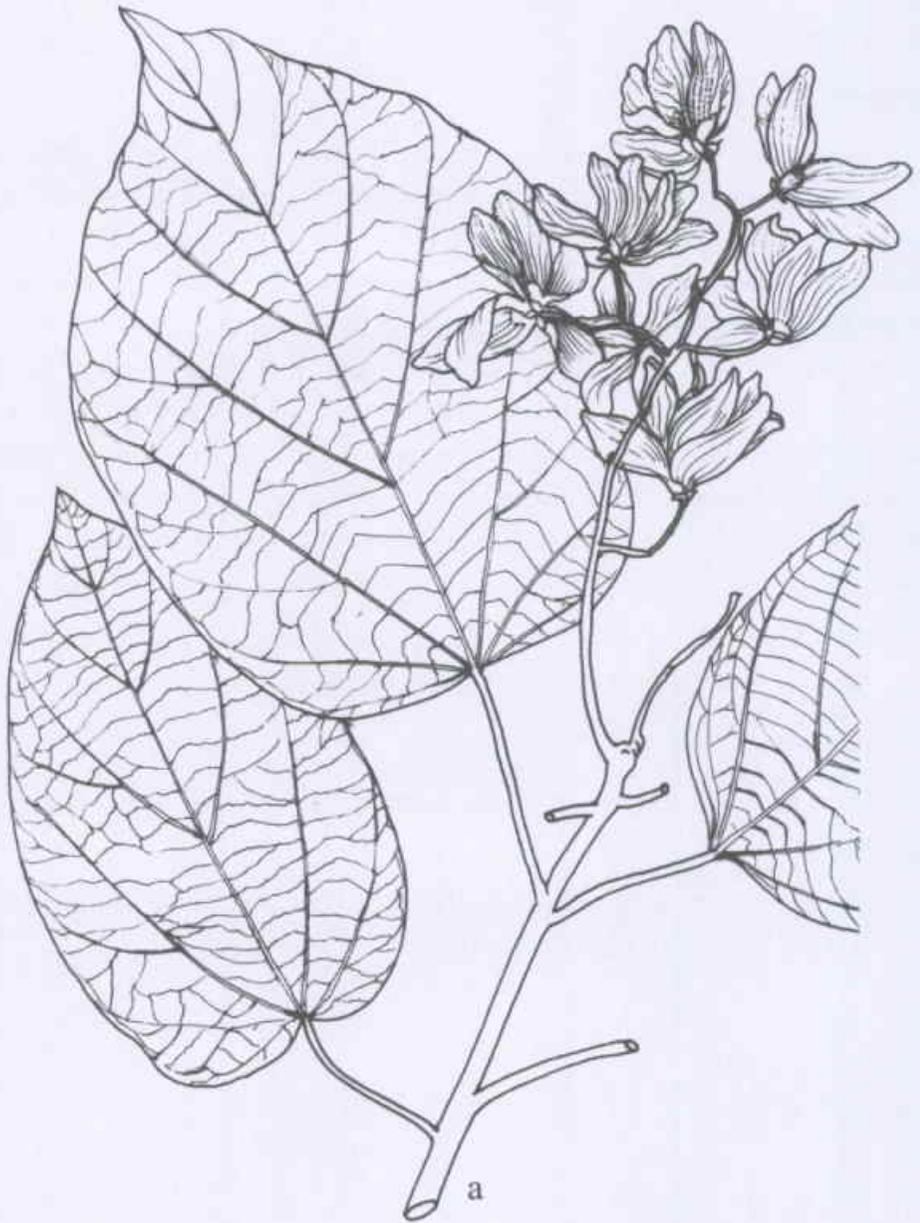


Figure 2. *Brownlowia elata* Roxb., a) habit sketch.

**Brownlowia tersa** (L.) Kosterm., Counc. Sci. Indon. Public. 1: 73 (1959). Reinwardtia 4: 536 (1959); Daniel & Chandrabose, Fl. India 3: 480-481 (1993); Phengkklai, Fl. Thailand 6 (1): 12-13 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 381 (2009); *Glabraria tersa* L., Mant. Alt. 2: 276 (1771); *Brownlowia lanceolata* Benth. in J. Linn. Soc. Bot. 5. Suppl. 2: 57 (1861); Masters in Hook. f., Fl. Brit. India 1: 381 (1874-reprint 1961); Kurz, Fl. Burma 1: 154 (1877); King, J. As. Soc. Bengal 60 (2): 97 (1891); Prain, Beng. Pl. 1: 281 (1903-reprint 2004); Brandis, Ind. Trees: 93 (1906); Ridl., Fl. Mal. Pen. 1: 291 (1922). **Fig. 3.**

Bengali: *Bola Sudri*, *Kedar Sundrii*

A shrub or small trees, 2-10 m high, branchlets slender, lepidote, greyish. Leaves 14-16 × 3.5-5.0 cm, lanceolate, base rounded, apex acuminate, margin entire, glabrous above, silvery-greyish beneath, pinnately nerved; petioles up to 8 mm long, slightly thickened at the apex. Inflorescence terminal and axillary, 3-7 cm long. Flowers buds globose. Calyx campanulate; lobes 3 mm long, lanceolate, acute, lepidote. Petals c 5 mm long, narrowly obovate. Anthers didymous; lobes slightly divergent; connectives thick, staminodes linear-lanceolate, petaloid, sometimes with rudimentary anthers. Ovary 4-lobed; each locules 2-ovuled, style simple, 3-4 mm long; stigma 4-lobed. Fruit a capsule, c 1.5 cm long, pyriform, truncate, widest at the apex, distinctly two-lobed. *Fl. & Fr.*: 5-9. *In Monsoon forest*.  $2n=40$  (Fedorov, 1969).

**Chattogram:** Chokoria Sundarbans, Near Dulahazara beat, 8 v 1980, *Huq & Rahman* 4596 (DACB). **Cox's Bazar:** Signal Hill, 27 viii 1943, *James Sinclair* 3197 (CAL). **Khulna:** Sundarbans, iv 1984, *J.H. Sandom* 35 (DACB).

India, Myanmar, Thailand and Malesia.

In Tamil Nadu (India), the wood is used for making masula boats (Jain, 1981).



Figure 3. *Brownlowia tersa* (L.) Kosterm., a) habit sketch; b) fructing part of branch.

**Colona Cav.,**

Ic. 4: 47. t. 370 (1798).

Type species: *C. serratifolia* Cav.

Trees, covered with stellate hairs. Leaves distichously arranged, simple, base usually oblique; stipules often foliaceous and persistent, sometimes oblique, 3-7 nerved from the base, margin serrate. Inflorescence in cymes, terminal and axillary. Flowers small, clustered, hermaphrodite, 5-merous. Sepals 5, free, hairy outside, glabrous inside. Petals 5, free, glabrous, glandular at the base. Stamens numerous, free, arising from a raised receptacle, anthers dorsifixed, subglobose, opening lengthwise, staminode absent. Ovary 3-5 locular, locule with 2-4 ovules, style subulate, stigma pointed. Fruit a capsule, cocci 2-5, with 3-5 longitudinal wings, indehiscent, 1-seeded. Seeds endospermous, cotyledons flat.

About 30 species, distributed South and South East Asia (Phengkklai, 1993). In Bangladesh the genus is represented with only 1 species.

**Colona flagrocarpa** (C.B. Clarke ex Brandis) Craib; Fl. Siam. Enum. 1 (1): 189 (1925). Burret, Notizbl. Bot. Gart. Berlin 9: 807 (1926); Deb, Fl. Tripura 1: 273 (1981); Daniel & Chandrabose, Fl. India 3: 482 (1993); Phengkklai, Fl. Thailand 6 (1): 64-65 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 382 (2009); *Columbia flagrocarpa* C.B. Clarke ex Brandis, Ind. Trees: 101 (1906); *Colona flagrocarpa* (C.B. Clarke) Craib var. *siamensis* Craib, op. cit.:189 (1925). **Fig. 4.**

A small to medium sized trees, 12-15 m tall, with umbrageous crown, branchlets softly tomentose. Leaves 12-20 × 5-7 cm, simple, ovate-lanceolate, base oblique or subcordate, apex acuminate, margin denticulate, softly tomentose beneath, 3 nerved at the base, petioles up to 1.5 cm long, stout, pubescent. Inflorescences in terminal and axillary panicles, flower bud globose, c 3 mm diam. Sepals 5, oblong. Petals 5, 2 mm long, oblong, spatulate, as long as or longer than the sepals. Stamens many, glabrous. Ovary globose, hairy, 3-5 loculed; stigma hairy. Fruit a capsule, 2.5 cm across, ovoid or obovoid, separating into 3-5 wings when ripe. Seed bearing portion covered with stellate bristles. *Fl. & Fr.*: 6-12. *In Deciduous and evergreen forests.*

**Rangamati:** Baluchara, Rampahar, 30 ix 2002, *Sarder Nasir Uddin* N. 1638 (DACB); Baluchara, Rampahar, Kaptai, 18 x 2003, *Sarder Nasir Uddin* N. 2117 (DACB).

India, Myanmar, Thailand, Laos and Vietnam.



Figure 4. *Colona floagocarpa* (Clarke ex Brandis) Craib, a) habit sketch; b) fruit.

**Corchorus L.,**

Sp. Pl. ed. 1: 529 (1753).

Lectotype: *C. olitorius* L.

Annual herbs, covered with simple hairs and stellate hairs. Leaves alternate, petiolate, serrate, 3 nerved at base, stipules filiform. Inflorescences axillary or leaf-opposed, pedunculate, 1-few-flowered cymes. Flowers 5-merous, small, hermaphrodite, bracteate, subsessile or shortly pedicellate. Sepals 4 or 5, free, valvate, hairy outside, glabrous inside. Petals 4 or 5, free, mostly imbricate, yellow, glabrous but hairy along the margin, not glandular at the base. Stamens 5-many, or rarely twice as many as sepals, free, staminodes absent, anthers dorsifixed, subglobose, opening length-wise. Carpels 2-5, syncarpous, ovary superior, 2-5 loculed, ovules many in each locule, style short, subulate, stigma simple, undulate or crenate, papillate. Fruit a capsule, elongate, linear-oblong or sub-globose and muricate, loculicidally 2-5 valved, locules aseptate or transversely septate between the seeds, loculicidally dehiscient. Seeds many, pendulous or horizontal, endospermous, often with an incurved embryo, foliaceous cotyledons.

About 100 species in tropics and subtropics of the world ( Daniel and Chandrase, 1993). In Bangladesh, this genus is represented by 4 species.

**KEY TO THE SPECIES**

- |   |   |                        |
|---|---|------------------------|
| 1 | Capsule oblong to linear-oblong, beaked | 2                      |
| + | Capsule globose, not beaked             | <b>C. capsularis</b>   |
| 2 | Capsule winged                          | <b>C. aestuans</b>     |
| + | Capsule not winged                      | 3                      |
| 3 | Capsule glabrous, 10-ribbed             | <b>C. olitorius</b>    |
| + | Capsule hairy, not ribbed               | <b>C. fascicularis</b> |

**Corchorus aestuans** L., Syst. Nat. ed. 10 (2): 1079 (1759). Gafoor, Fl. Pakistan 75: 23 (1974); Bakshi, Fl. Murshidabad: 72 (1984); Daniel & Chandrase, Fl. India 3: 385 (1993); Phengklai, Fl. Thailand 6 (1): 30 (1993); Tang *et al.*, Fl. China 12: 249 (2007); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 382 (2009); *C. acutangulus*

Lamk., Encycl. 2: 104 (1786); Masters in Hook. f., Fl. Brit. India 1: 398 (1874-reprint 1961); Prain, Beng. Pl. 1: 286 (1903-reprint 2004); Heinig, Enum: 135 (1907); Gamble, Fl. Pres. Madras: 121 (1915); Haines, Bot. Bihar & Orrisa: 87 (1925); Heinig, List Chittagong: 8 (1925); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Nair, Fl. Bash. Himal.: 46 (1977); Hara, Fl. Pl. Nepal 2: 71 (1979); Matthew, Fl. Tamilnadu Carnatic 3: 158. t. 14 b. (1983); Collett, Fl. Siml.: 65 (1902); *C. fuscus* Roxb., Fl. Ind. 2: 582 (1832). **Fig. 5.**

Bengali: *Titapat, Ban-pat*

English: *Jute*

An annual herb, much-branched, suberect or spreading, 10-60 cm tall. Stem pilose, red-brown, slightly yellowish puberulent, branches slender. Leaves 2-10 × 1-5 cm, lanceolate to ovate, base more or less rounded, apex acute, margin serrate, basal most serrations prolonged into filiform processes or not, glabrous above, pilose with conspicuously raised nerves beneath, 3-5 nerved, nerves hairy to almost glabrous, basal pair of teeth usually elongating into filiform or caudate appendages. Petioles 0.5-4.0 cm long, pilose, grooved, purple, with long rigid hairs, stipules 5-10 mm long, sparsely hairy, purplish-green. Flowers 2-3 in leaf-opposed, shortly pedunculate cymes, 1 cm across, pedicels 2 mm long, jointed near the apex, bracts 4-6 mm long, filiform, purple. Sepals 5, 3-4 mm long, linear-oblong, hooded and apiculate, purple-dotted inside, green outside, glabrous. Petals 5, 3-5 mm long, obovate, obtuse with a glandular claw, hairy at the base, yellow. Stamens 12-30, yellow, c 3 mm. Carpels 3, ovary 2 mm long, cylindrical, pubescent, 3-loculed, styles 3-fid, rod-like, c 1.5 mm long, stigma 2-lobed, beak-like, 5-toothed. Fruit a capsule, solitary or paired, 10-30 × 4-6 mm, 6-angled, 3 of the angles winged, truncate with 3, 2 fid, 3-7 mm long, diverging, glabrous beaks at top, 3-loculed, locules transversely septate or aseptate. Seeds numerous, blackish-brown, angular, rough, obliquely truncate at both ends. *Fl. & Fr.*: 8-2. *In waste places where it grows as a weed.*  $2n=14$  (Kumar and Subramaniam, 1986).

The whole plant including the root is used in the form of an injunction for urethral discharge (Caius, 1988).

**Chattogram:** Rajnagar, 10 iv 1969, *Amalendu* 73 (DUSH); Near Raozan, 15 x 1978, *Khan & Huq* K. 5252 (DACB); Jungle Chunati No. 1, 8 x 1988, *Khan, Huq & Alam* K. 8100 (BFRIH); Jaldi range, Silchari, 16 x 1978, *Khan & Huq* K. 5284 (DACB); Jaldi reserve 31 xii 1989, *Khan, Huq & Alam* K. 8248 (BFRIH); Chillatali, Northnolbila,

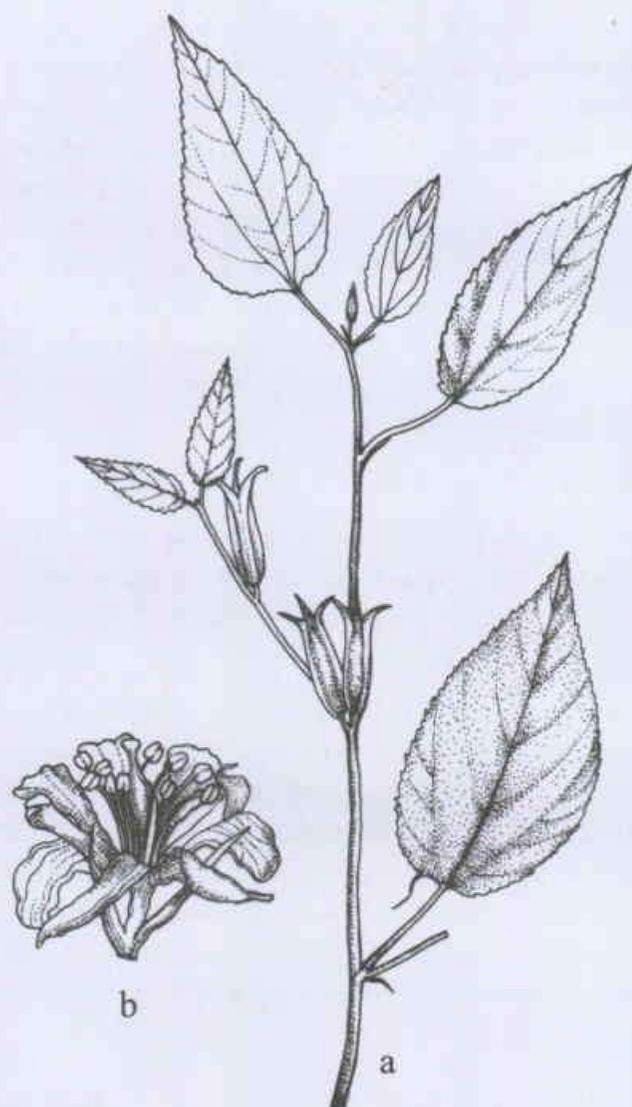


Figure 5. *Corchorus aestuans* L., a) habit sketch; b) flower.

Kalarmarchara, 6 x 1992, *E. Rahman* 118 (HCU). **Chittagong Hill Tracts:** Rangamati court side, 12 vi 1969, *Alo Rani* 197 (DUSH); Kaptai, 10 x 1974, *Yusuf* 201 (BCSIRH); Thandachari, 15 x 1978, *Khan & Huq* K. 5243 (DACB); 15 x 1979, *Khan & Huq* K. 5242 (DUSH). **Chuadanga:** Nilmaniganj, 11 xii 1988, *Huq, Rahman & Mia* H. 8855 (DACB). **Cox's Bazar:** Near Jahajpura, Neela, 14 xi 1992, *Khan, Rahman & Hassan* K. 8821 (DACB). **Dhaka:** Dhaka Bot. Garden, *S.K. Sen* (DUSH). **Dinajpur:** Singra forest, 12 x 1980, *Huq, Rahman, Mia & Mahbuba* H. 4768 (DACB). **Khagrachari:** Gomoti, Panchasi, 23 iv 2011, *Sarder Nasir Uddin* N. 4599 (DACB). **Kushtia:** Munshigonj, 24 ix 1978, *Khan & Huq* K. 4993 (DACB). **Rajshahi:** Rajshahi University Campus, 19 xii 1988, *Huq, Rezia, Mahfuz & Bushra* H. 8794 (DACB); Charghat, 24 x 1989, *Mia, Rahman, Halim and Rezia* M. 2317 (DACB). **Rangamati:** Sitapahar, 25 x 1995, *Md. Mohiuddin* 7536 (DUSH). **Satkhira:** Samnagar, Nakirpur old Zamidar house, *Huq, Rahman, Mia & Mahfuz* H. 9437 (DACB).

#### Pantropical.

The bitter seeds are given by the *Munda* ethnic people of Chota Nagpur (India) in pneumonia and stomach-ache. In Ghana, the whole plant including the root is used in the form of an injunction for urethral discharge (Caius, 1998).

**Corchorus capsularis** L., Sp. Pl.: 529 (1753); Lour., Fl. Cochinch.: 334 (1790); Masters in Hook. f., Fl. Brit. India 1: 397 (1874-reprint 1961); Prain, Beng. Pl. 1: 286 (1903-reprint 2004); Gamble, Fl. Pres. Madras: 121 (1915); Heinig, List Chittagong: 8 (1925); Craib in Fl. Siam. En. 1: 192 (1925); Haines, Bot. Bihar & Orrisa: 86 (1925); Kanjilal *et al.*, Fl. Assam 1: 168 (1934); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Sinclair, Fl. Cox's Bazar 9 (2): 88 (1956); Gafoor, Fl. Pakistan 75: 383 (1974); Hara., Fl. Pl. Nepal 2: 76 (1979); Daniel & Chandrabose, Fl. India 3: 485 (1993); Phengkklai, Fl. Thailand 6 (1): 32 (1993); Tang, *et al.*, Fl. China 12: 249 (2007); Khan in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 383-384 (2009). **Fig. 6.**

Bengali: *Nalitapat, Deshi-pat, Bagi-pat*

English: *Jute*

Annual herbs, erect, much branched, robust, attaining up to 2 m, glabrous. Leaves petiolate, petioles up to 4 cm long, puberulous, blade ovate-lanceolate or linear-lanceolate, 5-15 x 1.5-8.0 cm, glabrous, basal veins ascending to mid leaf, lateral veins 8-10 pairs, base rounded, apex acuminate, margin serrulate-crenulate, basal most serrations backwardly prolonged into setaceous appendages, stipules 6-10 mm long,

linear. Inflorescences in axillary or leaf-opposed cymes. Flowers oppositifolious, 2-3 fasciculate or sometimes solitary, peduncle and pedicel short, bracts 2-3 mm long, linear-ovate. Sepals 4, linear-oblong, 4-5 mm long. Petals obovate, 3-5 mm long, notched at the apex, yellow, obovate. Stamens 20-30, filament c. 3 mm long, androgynophore short, glabrous. Carpels 5, ovary subglobose, glabrous, 5-loculed, style minute, stigma lobed. Fruit a capsule, capsule subglobose-globose, c 1 cm across, beakless and depressed at apex, longitudinally grooved, scabrous, ridged, tuberculate or muricate, 5-loculed, locules aseptate. Seeds cuneiform, c  $3 \times 1$  mm, brown, glabrous. *Fl. & Fr.*: 6-11. *In the plains where it is cultivated.*  $2n=8, 14, 16, 28$  (Kumar and Subramaniam, 1986).

The infusion of the leaves are used as a bitter tonic and also prescribed to treat dysentery, skin diseases and disorder of the digestive system (Caius, 1998).

**Chattogram:** Rajnagar, 10 iv 1968, *Amalendu* 81 (DUSH); Kaptai, Phumora village, 16 x 1978, *Khan & Huq* K. 5282 (DACB); Sandwip, Horishpur, Hazipara, 10 ii 1988, *Mia & Mahfiz* M. 1560 (DACB); Near BCSIR Lab, 14 x 1978, *Khan & Huq* K. 5174 (DACB). **Chittagong Hill Tracts:** Pablakhali, Dudhchari to Amtali, 26 x 1977, *Khan, Huq Rahman, & Shajahan* K. 4657 (DACB); Near Ghagra, 15 x 1978, *Khan & Huq* K. 5234 (DACB). **Dhaka:** Gorain, 15 iv 1940, *A.K. Acharjee* (DUSH); Dhaka, 19 x 1949, *S.K. Sen* (DUSH); Near Madanpur, 12 xi 1975, *Huq, Rahman & Mia* H. 1487 (DACB); Dhaka University Campus, 31 x 1989, *Rezia & Mahbuba* RK. 577 (DACB). **Dinajpur:** Bochagonj, Haripur, 26 viii 1998, *Mia et al.*, M. 4282 (DACB). **Gazipur:** Kaligonj, 6 ix 1986, *M.K. Mia* 1268 (DACB). **Jessore:** Kaligonj, Mallikpur, 31 viii 1983, *Huq, Mia & Mahbuba* H. 6049 (DACB). **Mymensingh:** Dhanchira, 4 xi 1983, *Huq, Rahman, Mia & Momtaz* H. 5487 (DACB). **Noakhali:** Momarijpur, 18 xi 1981, *Huq, Rahman, Halim & Begum* H. 5241 (DACB). **Panchagarh:** Boda, Kajal Dighi, 1 vii 1998, *Mia, Nasir, Moshrraf & Sk. Haroon* M. 3994 (DACB). **Patuakhali:** Kolapara thana, Kuakata, 4 i 1980, *Khan, Huq, Rahman & Mia* K. 5949 (DACB). **Pirojpur:** Balihari Khal, 17 x 1988, *Khan, Huq, Mia and Mahfiz* K. 7866 (DACB). **Rangpur:** Chilahati, 17 x 1976, *Huq, Rahman & Mia* H. 2718 (DACB).

Pantropical.

Jute fibre is obtained from the secondary phloem of the plant. The infusion of leaves is used as a popular domestic medicine for disorder of the liver and is of great value in alleviating the symptoms of burning hands and feet. The infusion is also used as a bitter tonic and also prescribed to treat dysentery, skin diseases and disorder of the digestive system (Caius, 1998).



Figure 6. *Corchorus capsularis* L., a) habit sketch; b) flower.

**Corchorus fascicularis** Lamk., *Encycl.* 2: 104 (1786). DC. *Prodr.* 1: 505 (1824); Masters in Hook. f., *Fl. Brit. India* 1: 398 (1874-reprint 1961); Trimen, *Handb. Fl. Ceylon* 1: 183 (1893); Prain, *Beng. Pl.* 1: 286 (1903-reprint 2004); Gafoor, *Fl. Pakistan* 75: 25 (1974); Matthew, *Fl. Tamilnadu Carnatic* 3: 158. t. 14b. (1983); Daniel & Chandrabose, *Fl. India* 3: 486-487 (1993); Khan in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 384-385 (2009); *C. brachycarpus* Guillemin *et al.*, *Fl. Seneg. Tent.* 89 (1831). **Fig. 7.**

Bengali: *Binalita, Jangli-pat*

English: *Wild Jute*

An annual suberect herb, 40-60 cm high. Stem woody, with scaly bark, glabrous. Leaves 1.5-8.0 × 0.5-2.0 cm, lanceolate or elliptic-oblong, obtuse at the apex, serrate, basal most serrations not prolonged into filiform appendages, glabrous to subglabrous, 3-nerved, petioles 3-10 mm long, hirsute, stipules 5 mm long, subulate. Flowers yellow, 2-5 (8)-flowered, leaf opposed, shortly pedunculate cymes. Sepals 5, 1.5-2.5 mm long, linear-oblong, apiculate. Petals 5, as long as sepals, oblong to obovate. Stamens 5-10, filaments c 1.5-20 mm long. Carpels 3, ovary oblong-ovoid to linear, hairy, 3-loculed, style short, stigma capitate. Capsule in fascicles of 2-5 (8), 1.0-1.5 cm long, more or less triangular, shortly stalked, pubescent, shortly beaked, 3-loculed, locules septate between seeds. Seeds 1.0-1.5 mm long, wedge-shaped, truncate at one end and obliquely produced at the other, black. *Fl. & Fr.*: 1-12. *In dry land where it is a common cultivated crop, also surroundings of fields and along sides of channels in moist conditions.*

**Cox's bazar:** Rajarchara, 5 x 1991, Khan, Huq, Mia & Rahman K. 8600 (DACB).

**Dhaka:** Dhaka University Botanical Garden, 21 x 1944, (DUSH); Dariapur, 14 xii 1972, A.M. Huq 750 (DACB). **Rajshahi:** Rajnagar, 10 iv 1968, Amalendu 81 (DUSH); Rajshahi University Campus, 9 xii 1972, A.M. Huq 480 (DACB); Godagari, 17 xi 1988, Huq, Rezia, Mahfuz & Bushra H. 8700 (DACB).

India, Sri Lanka, Africa and Australia.

In Bombay (Mumbai), a watery extract mixed with sugar-candy, is taken as a nutritive tonic (Caius, 1998).



Figure 7. *Corchorus fascicularis* Lamk., a) habit sketch; b) t.s. of fruit; c) seed.

**Corchorus olitorius** L., Sp. Pl.: 529 (1753). Masters in Hook. f., Fl. Brit India 1: 397 (1874-reprint 1961); Prain, Beng. Pl. 1: 286 (1903-reprint 2004); Heinig, Enum: 133 (1907); Gamble, Fl. Pres. Madras: 121 (1915); Ridl., Fl. Mal. Pen. 1: 305 (1922); Craib in Fl. Siam. En. 1: 192 (1925); Heinig, List Chittagong: 8 (1925); Kanjilal *et al.*, Fl. Assam 1: 169 (1934); Chakr., Bull. Bot.Soc. Beng. 5: 77 (1951); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Gafoor, Fl. Pakistan 75: 30 (1974); Daniel & Chandrabose, Fl. India 3: 487 (1993); Phengklai, Fl. Thailand 6 (1): 28-29 (1993); Tang *et al.*, Flora China 12: 250 (2007); Mia & Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 385 (2009); *C. tridens* L., Mant. 2: 556 (1771); *C. trilocularis* L., Mant. 2: 77 (1771); *C. decemangularis* Roxb., Hort. Beng. 42 (1814), nom. Nud. & Fl. Ind. 2: 582 (1832); *C. catharticus* Balanco, Fl. Filip.: 442 (1837). **Fig. 8.**

Bengali: *Tosha Pat, Lalita Pat, Deo-pat*

English: *Tossa Jute*

An annual herb with a woody base, erect, stout, branched, up to 30-100 cm tall, glabrous to subglabrous. Leaves oblong to lanceolate, 2.5-12.0 × 0.5-3.5 cm, cuspidate at the apex, base rounded or cuneate, leaf base with a pair of filiform appendages, margin serrate to serrulate, 3-nerved at the base, secondary nerves 3-7 pairs, scalariform veins distinct on lower surface, petioles 0.5-4.5 cm long, sparsely hairy, stipule ovate-lanceolate, c. 1 cm. Inflorescence solitary or in pairs, opposite the leaf, flower buds obovate, 4 × 3 mm, apiculate. Peduncle and pedicels short. Sepals linear-oblong, 5-7 × 1.5-3 mm, apiculate. Petals oblanceolate, 7-8 × 2.5-4.0 mm, hairy at the base, obtuse. Stamens numerous, somewhat united at base, filaments 6-7 mm long, anthers subglobose. Carpels 5, ovary 5-loculed, cylindrical, thinly hairy, style short, stigma 5-lobed, minutely papillate. Fruit a capsule, capsule 1 or 2 together, 2-7 cm long, subcylindrical, 10-ribbed, glabrous, 5-loculed, locules septate between seeds, beak entire, 4-8 mm long. Seeds c 2.0 × 1.5 mm, triangular, ovate, greenish-black. *Fl. & Fr.*: 7-12. *In open spaces and paddy fields*. 2n=14 (Khatoon and Ali, 1993).

**Chittagong Hill Tracts:** Nayapara, 16 x 1978, *Khan & Huq* K. 5285(DACB).

**Dhaka:** Daskandi, 17 vi 1970, *A.M. Huq* 49 (DACB).

India, China, Myanmar, Pakistan, Vietnam, Indochina, Australia and the Philippines.

The bark produce good fibres for making strings. Young leaves are fried and eaten (Phengklai, 1993).



Figure 8. *Corchorus olitorius* L., a) habit sketch.

**Grewia L.,**

Sp. Pl.: 964 (1753); Gen. Pl. ed. 5: 412 (1754).

Lecotype species.: *G. occidentalis* L.

Trees, shrubs or scandent shrubs, with stellate hairs. Leaves alternate, stipulate, petiolate, entire or serrate, rarely lobed, dentate or entire along margins, somewhat coriaceous. Inflorescences axillary, leaf-opposed or terminal, solitary or clustered, pedunculate, umbellate cymes or panicles. Flowers 5-merous, bracteate, pedicellate, bisexual. Sepals 5, free, valvate, leathery, usually coloured, almost glabrous within. Petals 5, very rarely absent, free, much shorter than the sepals, clawed with a gland inside. Stamens numerous, free, inserted on more or less elevated receptacle or androgynophore, anthers dorsifixed, dorsally curved, dehiscent longitudinally. Carpels 2-4, syncarpous, ovary superior, on top of androphore, 2-4 loculed with 2 or more superposed ovules in each locule, style subulate, with 2-4-lobed stigma. Drupes entire or 2-4-lobed, fleshy or fibrous with 1-4 pyrenes, each stone 1 or 2-seeded, rarely more seeded. Seeds suberect or horizontal, endospermous, embryo straight.

About 150 species in tropical and sub tropical rare in temperate regions (Daniel and Bose, 1993). In Bangladesh, this genus is represented by 14 species.

**KEY TO THE SPECIES**

- |   |   |                               |
|---|---|-------------------------------|
| 1 | Flowers in cymes  | 2                             |
| + | Flowers in axillary and terminal panicles                           | <b><i>G. nervosa</i></b>      |
| 2 | Trees   | 3                             |
| + | Shrubs or small trees   | 4                             |
| 3 | Leaves obliquely ovate, oblong-ovate, rounded or subcordate at base | <b><i>G. eriocarpa</i></b>    |
| + | Leaves ovate or ovate-rotund, obliquely cordate at base             | <b><i>G. tiliifolia</i></b>   |
| 4 | Leaves glabrous or glabrescent                                      | 5                             |
| + | Leaves tomentose or pubescent                                       | 6                             |
| 5 | Stigma 4-lobed, drupes 1.4 cm across                                | <b><i>G. lanceaefolia</i></b> |
| + | Stigma 5-lobed, drupes 5-15 cm across                               | <b><i>G. serrulata</i></b>    |
| 6 | Sepal 3-7 mm long   | 7                             |

+ Sepal 8-15 mm long	9
7 Flowers polygamous	<b>G. hirsuta</b>
+ Flowers bisexual	8
8 Leaves oblong-lanceolate, rounded or subacute at base	<b>G. helicterifolia</b>
+ Leaves rhomboid or rhomboid-obovate, narrowed at base	<b>G. piscatorium</b>
9 Petiole longer than peduncle	10
+ Petiole not longer than peduncle	11
10 Flowers buds ovoid-oblong, ribbed, petals white	<b>G. sclerophylla</b>
+ Flowers buds ellipsoid, not ribbed, petals dull yellow	<b>G. villosa</b>
11 Drupes glabrescent	<b>G. tenax</b>
+ Drupes not glabrescent	12
12 Drupes lobed	13
+ Drupes not lobed	<b>G. rothi</b>
13 Stigma laciniate	<b>G. abutilifolia</b>
+ Stigma lobed	14
14 Petals yellow	15
+ Petals white or pale yellow	<b>G. denticulata</b>
15 Leaves broadly ovate or suborbicular, obliquely cordate or rounded at base, acute or acuminate at apex	<b>G. asiatica</b>
+ Leaves ovate, broadly elliptic, subacute or rounded at base and apex	<b>G. sapida</b>

**Grewia abutilifolia** Vent. ex Juss., Ann. Mus. Natl. Hist. Nat. 4: 92 (1804). Masters in Hook. f., Fl. Brit. India 1: 390 (1874-reprint 1961); Kanjilal *et al.*, Fl. Assam 1: 166 (1934); Daniel & Chandrabose, Fl. India 3: 493-494 (1993); Phengklai, Fl. Thailand 6 (1): 19-21 (1993); Tang *et al.*, Flora China 12: 255 (2007); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 386 (2009); *G. aspera* Roxb. [Hort. Beng.: 42. 1814, nom. nud.], Fl. Ind. 2: 591 (1832); Dunn in Gamble, Fl. Pres. Madras: 119 (1915); Craib in Fl. Siam. En. 1: 183 (1925); *G. macrophylla* auct. non G. Don (1831); Naray. & R. Rao, J. Ind. Bot. Soc. 29: 187 (1950). **Fig. 9.**

Bengali: *Kowri*

A shrub or small tree, up to 3 m tall, branchlets yellow-brown stellate, coarsely hairy. Leaves 3.5-20 × 2-16 cm, elliptic-ovate, ovate or broadly oblong, usually lobed distally, base rounded or slightly cordate, apex acute or acuminate, margin serrate, sometimes obscurely lobed, scabrous above, stellate-tomentose beneath, 5-nerved, petioles 0.5-4.5 cm long, hairy; stipules 6 mm long, lanceolate, hairy. Inflorescences in axillary, umbellate cymes, peduncles 1-3 together, up to 1 cm long, flower buds 5-8 × 4 mm, ovoid or oblong, pedicels 2 mm long. Bracts filiform, caducous. Sepals 5, white, 8-12 mm long, narrowly oblong or lanceolate, acute, wooly outside. Petals 5, white, 2-4 × 1.0-1.5 mm, oblong, obtuse, ciliate at the base, glands subglobose, 2 mm across, densely ciliate. Receptacle 1 mm long, 5 angled, glabrous. Stamens many, filaments 5 mm long, glabrous. Ovary 1.5 × 1.0 mm, subglobose, villose, style as long as sepals, stigma 2-lobed, laciniate. Fruit a drupe, 0.8-1.5 cm across, subglobose, fleshy, obscurely 4-lobed, tomentose. *Fl. & Fr.*: 1-12. *In roadside and open plaaces in the hilly areas.*  $2n=18$  (Fedorov, 1969).

**Bandarban:** Lama, 05 ix 1997, *M.A. Rahman's Collector, M. Hossain* 1913 (HCU). **Chattogram:** Barabkunda, 23 vi 1979, *M.K. Mia* M. 134 (DACB); Locality unknown, xii 1885, *Badul Khan* (CAL). **Dhaka:** Ramna park, 17 v 1980, *Momtaaz Begum* 391 (DACB); Dhanmondi, North Road, 21 iv 1975, *Kabir* (DACB). **Rangamati:** Rampahar, 29 v 2003, *Sarder Nasir Uddin N.* 1949 (DACB); Sita Pahar, 01 vi 2003, *Sarder Nasir Uddin N.* 2007 (DACB). **Sherpur:** Gazni forest, 24 iv 1986, *Huq & Mia* H. 7696 (DACB).

India, Myanmar, Thailand, Indonesia and Malaysia.

Fruits are edible (Khan, 2009).

In southern parts of Indo-China, decoction of the roots of this plant is given as a cure for cough (Kirtikar *et al.*, 1935).

Indonesia, Malaysia and Myanmar.

**Grewia asiatica** L., *Mant. Pl.*: 122 (1767). *Masters in Hook. f., Fl. Brit India* 1: 386-387 (1874-reprint 1961), excl. var. *vestita*; *Prain, Beng. Pl.* 1: 283 (1903-reprint 2004); *Ghafoor, Fl. Pakistan* 75: 14-15 (1974); *Daniel & Chandrabose, Fl. India* 3: 494-495 (1993); *Khan in Ahmed et al., Encycl. Fl. Fauna Bangladesh* 10: 386-387 (2009); *G. subinaequalis* DC., *Prodr.* 1: 511 (1824); *Dunn, in Gamble Fl. Pres. Madras*: 18 (1915);

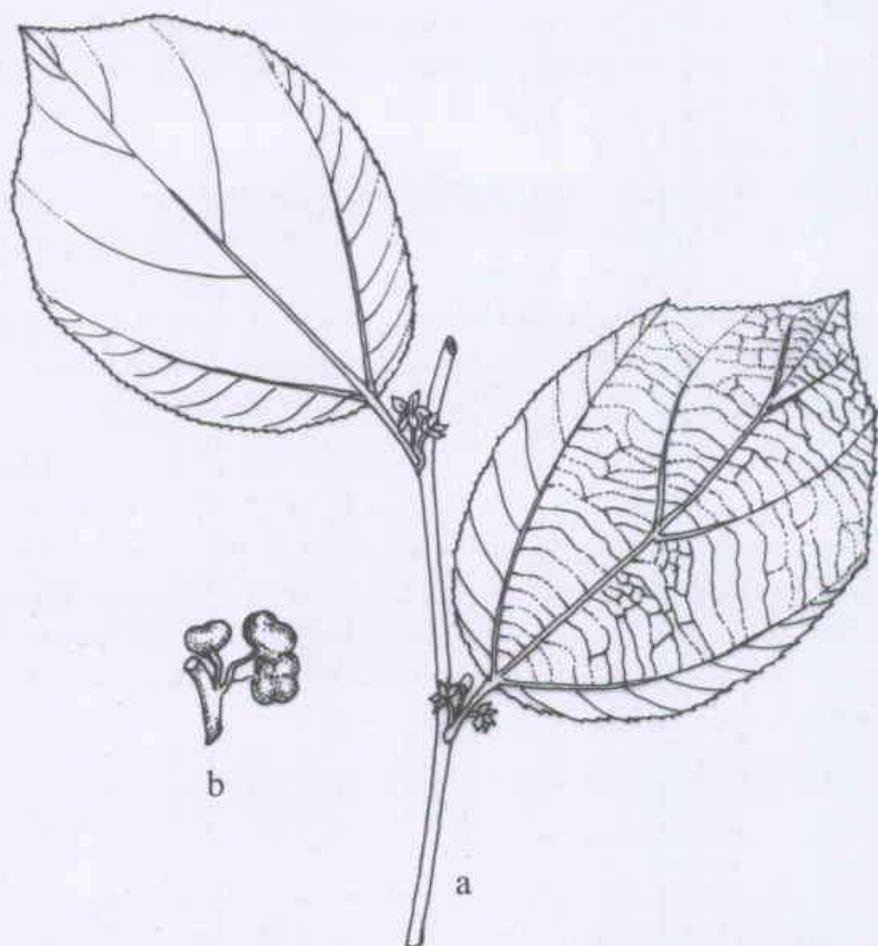


Figure 9. *Grewia abutilifolia* Vent. ex Juss., a) habit sketch; b) fruit.

Datta & Mitra, Bull. Bot. soc. Beng. 7 (1&2): 21 (1953); Bakshi, Fl. Murshidabad dist.: 73-74 (1984); *G. hainesiana* Hole, Ind. For. 43: 126 (1917); Parker, For. Fl. Punj. ed. 3: 50 (1956). **Fig. 10.**

Bengali: *Pholsa*

English: Phalsa

A shrub or Small tree. Leaves 5-19 × 4-15 cm, broadly ovate or suborbicular, base obliquely cordate or rounded, apex acute or acuminate, margin crenate, scabrous above, tomentose beneath, 5-7 nerved, petioles up to 1.8 cm long. Inflorescences in axillary, umbellate cymes, peduncle up to 3.5 cm long, buds 6-11 × 4-5 mm, oblong-obovoid, ribbed, tomentose, pedicels up to 1 cm long. Sepals 5, 6-12 × 2-3 mm, oblong-lanceolate or oblanceolate, tomentose. Petals 5, yellow, 3-7 × 1.5-3.0 mm, oblong-obovate or linear-oblong, obtuse, glands 1 × 0.7 mm, obovoid, Stamens numerous, filaments 4-6 mm long, orange-yellow, turning purplish, anthers oblong. Ovary 1.5-2.5 × 1.0-1.5 mm, ovoid, villous, stigma 4-lobed. Fruit a drupe, 7-12 mm across, subglobose, red or purple, obscurely 2-lobed, hairy. *Fl. & Fr.*: 8-1. *Deciduous and semi-evergreen forests and plains.* 2n=27, 36 (Fedorov, 1969).

**Cox's Bazar:** Baharchara union, Jahajpur-Nhile, 14 xi 1992, *Khan, Rahman & Hassan* K. 8803 (DACB). **Dhaka:** locality unknown, 12 iv 1868, C.B. *Clarke* 6787 (CAL); Cantonment, 17 v 1970, *M.A. Rahman* 112 (DUSH). **Dinajpur:** Tetulia, 16 iv 1961 *sine die* (DACB). **Mymensingh:** Bhaluka, 12 ii 1959, *Kazi Serajul Huq* 26 (DUSH); Modhupur, 29 vi 1969, *Asiya* 146 (DUSH).

India and Sri Lanka.

Fruits are edible (Khan, 2009).

The leaf is applied to pustular eruption (Caius, 1998).

**Grewia denticulata** Wallich *ex* Prain, Ann. Roy. Bot. Gard. Calc. 9: 10. t. 12. (1901). Kanjilal *et al.*, Fl. Assam 1: 167 (1934); Daniel & Chandrabose, Fl. India 3: 497 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Banglades 10: 387 (2009); *G. nagensium* Prain, J. Asiat. Soc. Beng. 69: 168 (1900); Alam, Woody Fl. Sylhet: 112 (1985); Deb, in Bull. Bot. Surv. India 3: 286 (1961).

Bengali: *Dhamni*

A small trees or struggling shrub, branches terete. Leaves 10-18 × 3-8 cm, ovate-lanceolate or oblong-lanceolate, base rounded, apex acuminate, margin serrate, sparsely pubescent above, densely pubescent beneath, 3-nerved, petioles up to 6 mm long. Inflorescences in axillary or leaf-opposed umbellate cymes, peduncle up to 2.5 cm long, buds oblong, tomentose, pedicels up to 2 cm long. Sepals 5, 1.2 cm long, lanceolate, tomentose. Petals 5, white or pale yellow, 5 mm long, ovate, glands 2.5 mm long. Ovary 2 mm across, subglobose, pubescent, stigma lobed. Fruit a drupe, 8-16 mm across, more or less globose, sometimes subglobose or distinctly 2-lobed, rugose, stellate-hispid. *Fl.* & *Fr.*: 5-9. *Hilly slopes.*

This plant was recorded from Bangladesh by Alam (1988). During field visits all over Bangladesh within the period of 1970-2016, this plant was not observed by the authors any where in the country. Description of the plant provided here is based on Alam (1988) and Daniel & Chandrabose (1993).

India and Myanmar.

***Grewia eriocarpa*** Juss., Ann. Mus. Natl. Hist. Nat. 4: 93 (1804). Daniel & Chandrabose, Fl. India 3: 497-498 (1993); Phengklai, Fl. Thailand 6 (1): 21-22 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 388 (2009); *G. elastica* Royle, Ill. Bot. Himal. Mts. 1: 104. t. 22 (1834); *G. vestita* Wallich ex Brandis, For. Fl. N.W. India: 40 (1874); *G. asiatica* L. var. *vestita* (Wallich ex Brandis) Masters in Hook. f., Fl. Brit. India 1: 387 (1874-reprint 1961); *G. elastica* Royle subsp. *vestita* (Wallich ex Brandis) Haines, Bot. Bihar & Orrisa: 93 (1921); *G. mesopoda* Burret in Notizbl. Bot. Gart. Berlin-Dahlem 9: 633 (1926); Naray. & R. Rao, J. Ind. Bot. Soc. 29: 179 (1950).

**Fig. 11.**

Bengali: *Dhaman*

English: *Dhamni*

A tree, up to 20 m tall. Leaves 7-14 × 5-11 cm, obliquely ovate, oblong-ovate or elliptic, base rounded or subcordate, apex acuminate, margin crenate-serrate, hispid above, tomentose beneath, 5-6 nerved, petioles up to 1 cm long, glabrescent. Inflorescences in axillary cymes, peduncles up to 1.5 cm long, buds 3 mm across, globose to ovoid, tomentose, pedicels up to 1 cm long. Sepals 5, 5-12 mm long, linear-oblong, hirsute. Petals 5, yellow, 3.5 mm long, oblong or oblong-obovate, glands 1.5 × 0.7 mm, oblong. Stamens numerous, glabrous, filaments 4 mm long. Ovary 2 mm across,

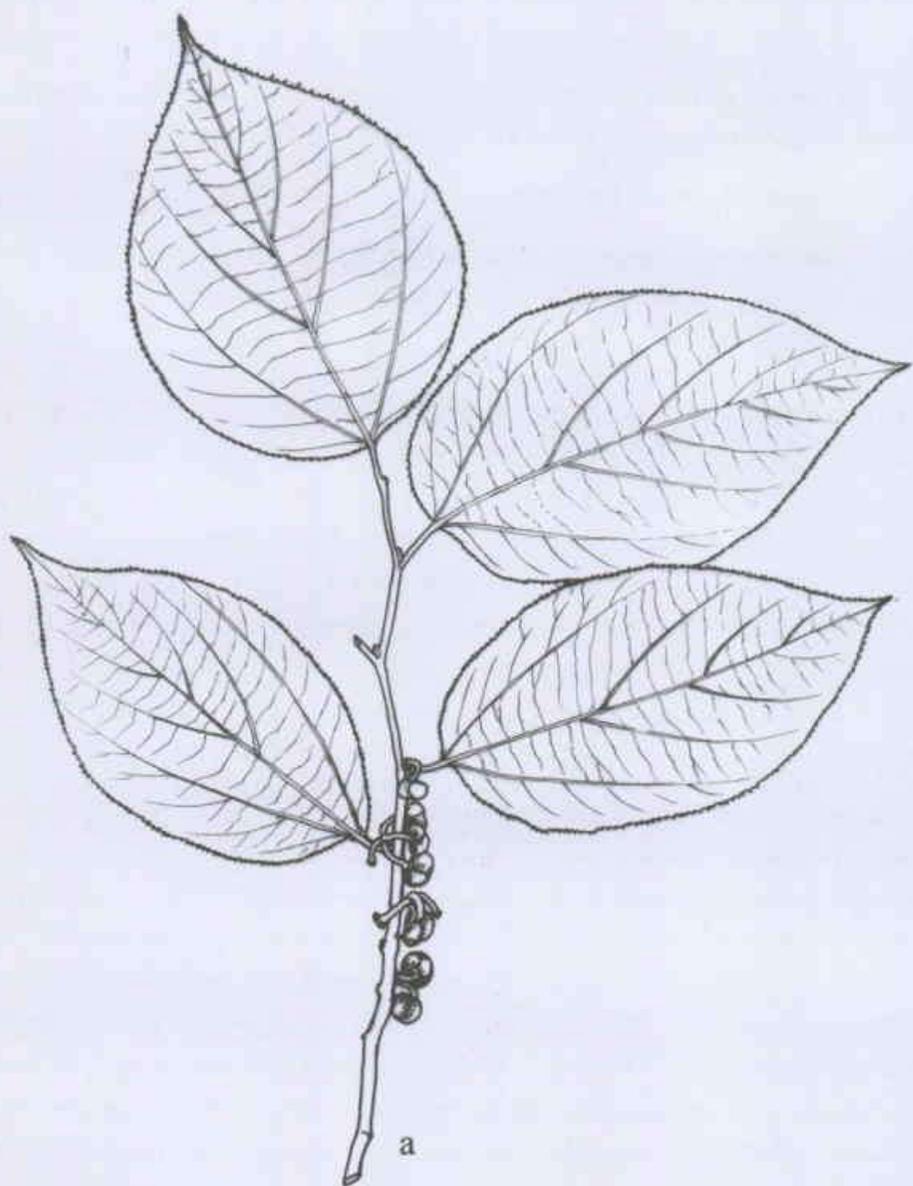


Figure 10. *Grewia asiatica* L., a) habit sketch.

globose, villous, stigma lobed. Fruit a drupe, 5-10 mm across, globose, obscurely 2-4 lobed, woody, black, sparsely pubescent. *Fl. & Fr.*: 2 - 11. *Plain lands where it grows as a weed.*  $2n=18$  (Kumar and Subramaniam, 1986).

**Chattoram:** Locality unknown, 16 v 1944, *Narayanswami* (CAL); Hazarikhil, 3 v 1995; *A.T.M. Mosleh Uddin* 80 (HCU).

India, Nepal, Bhutan and Myanmar.

Garments, sacks and mats are made from the bark. Ropes are used for tying rafts and dragging elephants. Bows are made from the stem (Jain, 1981).

***Grewia helicterifolia*** Wallich ex G. Don, Gen. Hist. 1: 548 (1831). Ghafoor, Fl. Pakistan 75: 10 (1974); Daniel & Chandrabose, Fl. India 3: 500 (1993); *G. hirsuta* Vahl var. *helicterifolia* (Wallich ex G. Don) Haines, For. Fl. Chota Nagpur: 196 (1910); *G. hirsuta* Vahl forma *helicterifolia* (Wallich ex G. Don) Haines, Bot. Bihar & Orissa: 90 (1921); *G. polygama* auct. non Roxb. (1832); Masters in Hook. f., Fl. Brit. India 1: 391 (1874-reprint 1961); *G. hirsuta* Vahl forma *polygama* sensu Haines, Bot. Bihar & Orissa: 90 (1921); non *G. polygama* Roxb. (1832); *G. viminea* Wallich ex Burret in Notizbl. Bot. Gart. Berlin-Dahlem 9: 711 (1926); Naray. & R. Rao in J. Ind. Bot. Soc. 29: 179 (1950).

A shrub or small tree, up to 1 m tall. Young shoots densely hirsute, older ones purplish-puberulous. Leaves 3-15 × 0.5-3 cm, oblong-lanceolate, base rounded or subacute, apex acute, margin irregularly serrate, hispid or glabrescent above, densely tomentose beneath, 3-nerved, petiole densely hairy, 2-6 mm long, stipules setose, 3-4 mm long, deciduous. Inflorescences in axillary, umbellate cymes, peduncles 1-3 together, 6-15 mm long, buds 4.5 mm across, ovoid-oblong or sub globose, densely pubescent, pedicels up to 7.5 mm long. Sepals linear-oblong, 5-6 mm long, pilose, acute, densely hairy outside. Petals white, oblong, rounded or subacute, c 2 mm long, glands 1.2 mm across, subglobose. Receptacle up to 1 mm long. Stamens 16-20; filaments 2-3 mm long. Ovary 1.5 mm across, globose, densely hairy, hairs as long as stamens, stigma lacinate. Drupe 8-20 mm across, obscurely 4-lobed, sometimes 2-lobed, subglobose, brown, fleshy, glabrescent or sparsely stellate hairy. *Fr. & Fr.*: 5-2. *Deciduous and evergreen forests.*

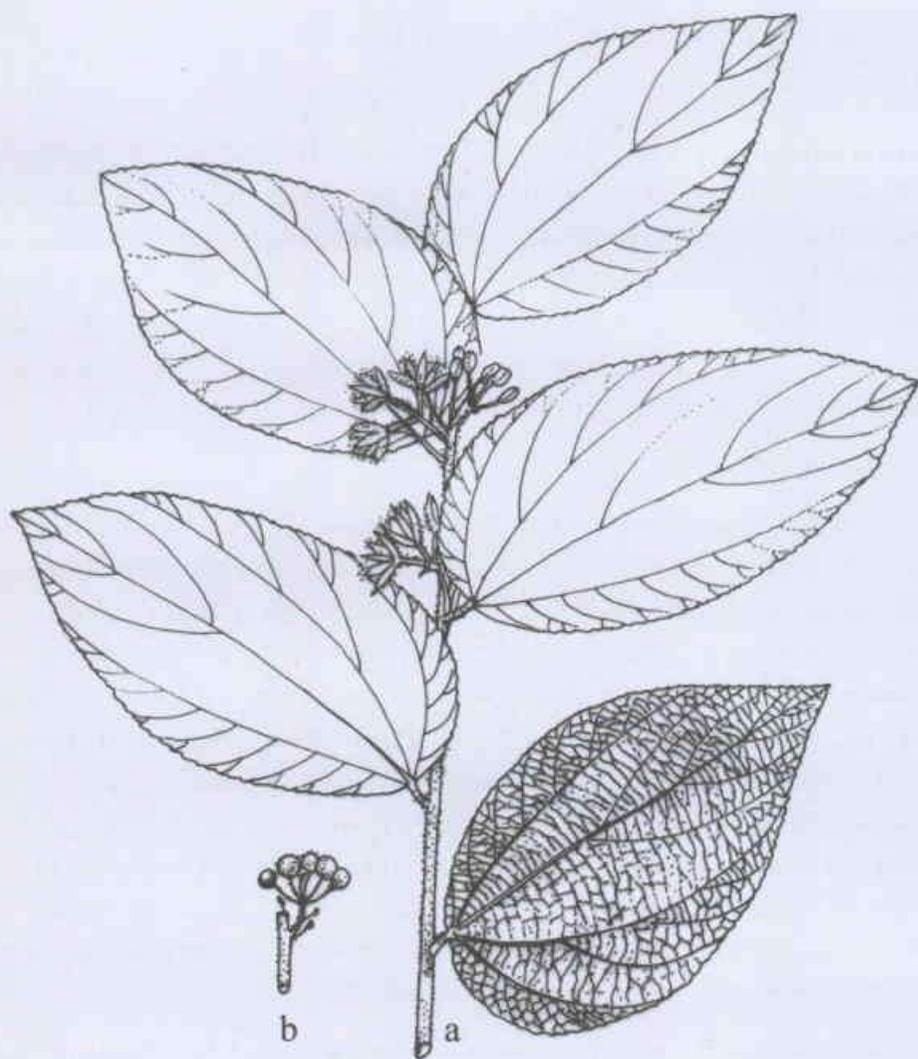


Figure 11. *Grewia eriocarpa* Juss., a) habit sketch; b) fruit.

**Dhaka:** Locality unknown, *C.B. Clarke* 7603 (K). **Mymensingh:** Locality & date unknown, *C.B. Clarke* 7820 (K).

India, Pakistan, Myanmar, Sri Lanka and Australia.

**Grewia hirsuta** Vahl, *Symb. Bot.* 1: 34 (1790). Roxb., *Fl. Ind.* 2: 587 (1832); Masters in Hook. f., *Fl. Brit. India* 1: 391 (1874-reprint 1961); Prain, *Beng. Pl.* 1: 284 (1903-reprint 2004); Matthew, *Fl. Tamilnadu Carnatic* 3: 170 (1990); Daniel & Chandrabose, *Fl. India* 3: 501 (1993); Phengkklai, *Fl. Thailand* 6 (1): 24-26 (1993); Tang *et al.*, *Fl. China* 12: 256-257 (2007); Khan in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 388-389 (2009); *G. roxburghii* G. Don, *Gen. Hist.* 1: 548 (1831); excel. syn. *G. tomentosa* auct. non Juss. (1804); Naray. & R. Rao, *J. Ind. Bot. Soc.* 29: 179 (1950). **Fig. 12.**

Bengali; *Kukurbicha*

A Shrub, 3-6 m tall. Leaves 1-12 × 0.7-4.5 cm, ovate, lanceolate, ovate-lanceolate or ovate-elliptic, base subcordate or subobtusate, apex acute or acuminate or sometimes subobtusate or rounded, margin serrate, pubescent above, densely hirsute beneath, 3(-4) nerved, petioles up to 7 mm long, hairy. Inflorescences in axillary, umbellate cymes, peduncles 1-3 together, up to 1 cm long, buds globose, pedicels 2-5 mm long. Sepals 8 mm long, elliptic-lanceolate, hirsute, 6-7 × 1.0-1.5 mm. Petals white, narrowly ovate, c. 3 × 1.5 mm, hairy on both sides, glands half the length of petals. Receptacle short, subterete, dilated at the apex, glabrous. Stamens 3-5 mm long, more than 40, glabrous. Ovary 2 mm across, globose, densely villous, style longer than stamens, glabrous, stigma 4-5 lobed, lobes fringed. Fruit a drupe, subglobose, 1.2 cm across, obscurely 4-lobed, fleshy, wrinkled, sparsely coarsely hairy. *Fl. & Fr.*: 1-12. *In scrub forests and dry evergreen forests.* 2n=18 (Kumar and Subramaniam, 1986).

This plant was recorded from Bangladesh by Daniel and Chandrabose (1993). During field visits all over Bangladesh within the period of 1970-2016, this plant was not observed by the authors anywhere in the country. Description of the plant provided here is based on Daniel and Chandrabose (1993).

India, Sri Lanka, Myanmar, Ceylon, South China, Laos, Cambodia, Vietnam, Malay Peninsula and Indonesia.

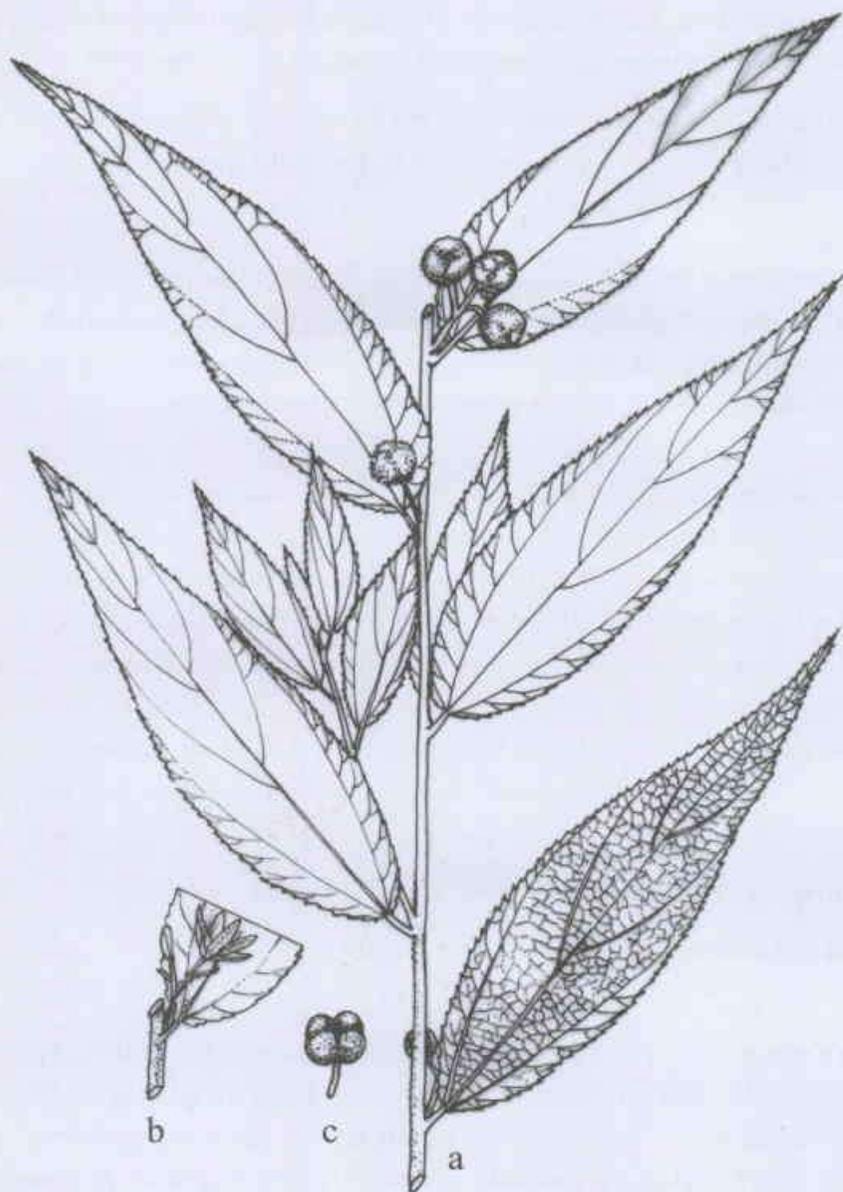


Figure 12. *Grewia hirsuta* Vahl, a) habit sketch; b) flowering twig; c) fruit.

The fruit is edible. The root and fruits have medicinal value. Powdered root mixed with water is applied externally to wounds to hasten suppuration (Khan, 2009).

The fruit is employed as a medicine by the *Santal* ethnic people in diarrhoea and dysentery. The root powdered is also prescribed for the same disease (Caius, 1988).

***Grewia lancaefolia*** Roxb., Fl. Ind. 2: 586 (1824). Dunn in Gamble, Fl. Pres. Madras: 118 (1915); Daniel & Chandrabose, Fl. India 3: 502 (1993); Huq in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 389 (2009); *G. diplocarpa* Thwaites, Enum. Pl. Zeyl.: 31 (1858); Masters in Hook. f., Fl. Brit. India 1: 390 (1874-reprint 1961).

A large shrub to small tree. Leaves 4.0-12.5 × 1.5-6.0 cm, ovate-lanceolate or elliptic-lanceolate, base narrowed, apex acuminate, margin crenate-serrate, glabrous or glabrescent, 3-nerved, petioles 0.2-2.0 cm long. Inflorescences in axillary cymes, peduncles 1-3 cm long, buds 10-12 mm long, cylindric, pedicels small, 1-2 cm long. Calyx with linear, lanceolate sepals, about 1.3-1.5 cm long, hirsute pubescent. Corolla with ovate, white petals, about 3.5 × 2.0 mm, pilose along the margin. Carpels with ovary about 2 mm across, subglobose, hirsute, stigmas 4-lobed. Fruit a drupes, about 1.4 cm across, distinctly 4-lobed, sparsely pilose. *Fl. & Fr.*: 5-2. *Moist deciduous and evergreen forests.*

**Chittagong** : Sitakundo, date unknown, *Hooker and Thomson* 333 (K).

India and Pakistan.

***Grewia nervosa*** (Lour.) Panigr., Taxon 34: 702 (1985). Daniel & Chandrabose, Fl. India 3: 502-503 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna, Bangladesh 10: 389-390 (2009); *Fallopia nervosa* Lour., Fl. Cochinch.: 336 (1790); *Microcos paniculata* L., Sp. Pl. 514 (1753); Phenghlai, Fl. Thailand 6 (1): 34-36 (1993); Tang *et al.*, Fl. China 12: 251 (2007); Barbhuiya and Gogoi, Bangladesh J. Plant Taxon. 17 (2): 146 (2010); *Grewia microscos* L., Syst. Nat. ed. 12 (2): 602 (1767), nom. illeg.; DC., Prod. 1: 510 (1825); Masters in Hook. f., Fl. Brit. India 1: 392-393 (1874-reprint 1961); Prain, Beng. Pl. 1: 282 (1903-reprint 2004); Heinig, List Chittagong: 8 (1925); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Sinclair, Bull. Bot. Soc. Beng. 9 (2): 88 (1956); Ghafoor, Fl. Pakistan 75: 6-7 (1974). **Fig. 13.**

Bengali: *Pichandi, Asar*

A semi-deciduous tree, up to 15 m in height, trunk often fluted, young shoots patently pubescent, bark ash-coloured, exfoliating in thin flakes. Leaves 9-23 × 4.0-10.5 cm, elliptic-oblong, lanceolate or ovate-lanceolate, margin serrulate or subentire, chartaceous, glabrescent, base slightly cordate or unequal, apex acute or acuminate, dull and stellate-puberulous especially along the veins beneath, lateral nerves 6-7 on either side, basal nerves 3, petioles up to 1 cm long, hairy, stipules linear-lanceolate. Inflorescences in terminal and axillary panicles, buds 5-7 mm long, obovoid or subglobose, tomentose, pedicels 1 mm long. Sepals 5, ovate-oblong, 5-7 mm long, pubescent, cream-coloured. Petals 5, yellowish, narrowly ovate-oblong, acute, 2 mm long, pubescent at base, glands half the length of petals, sparsely ciliate. Receptacle 1 mm long, ciliate at apex. Stamens many, filaments distinct, 2.5-4.5 mm long, the lower part pilosulous, usually glabrous, anthers dorsifixed. Ovary glabrous, globose, c. 1 mm. across 3-celled, the style c. 4 mm long, gradually tapering towards the apex, the stigma 2 fid, minute. Fruit a drupe, globose or obovoid, wrinkled, glabrous, 8-10 mm across. *Fl. & Fr.*: 3-12. *In mixed deciduous and dry evergreen forest.*

**Chattogram:** Kasalong, 22 ii 1976, *R. Ellis* (CAL); Sitakundo Chandranath Hill, 21 viii 1987, *Khan, Huq & Mia* K. 7740 (DACB); Foy's Lake, 9 viii 1989, *Huq et al.* H. 9338 (DACB); Baskhali, 12 v 1990, *Khan & Huq* K. 8285 (DACB); Chittagong University Campus, 26 viii 1996, Collector unknown 3 (HCU). **Chittagong Hill Tracts:** Mainimukh on the Northern side, *Huq & Rahman* H. 3194 (DACB); Manikchari, 25 iv 1976, *Huq Rahman & Mia* H. 2381 (DACB); Bariadhala Range, 24 vi 1993, *Mia, Rahman, Rezia & Momtaz* M. 3272 (DACB). **Comilla:** Lalmai, 7 viii 1988, *Mahfuz & Huq* MZ. 180 (DACB). **Cox's Bazar:** Goalmara beat, 1 x 1989, *Khan & Huq* K. 8135 (DACB); Goalmara, 3 viii 1990, *Khan, Huq & Alam* K. 8400 (DACB). **Dhaka:** locality unknown, 14 ix 1867, *C.B. Clarke* (CAL.); Gulshan, 26 xi 1975, *A.M. Huq* 1741 (DACB); Ashuria, 18 viii 1977, *Khan & Huq* K. 4497 (DACB); Chandragorai, 1 vi 1978, *Khan et al.* K. 4919 (DACB); Tangail, 10 vi 1997, *Bushra* 20 (DACB); Savar Club Rest House, 10 v 1998, *Momtaz Mahal Mm.* 229 (DACB); Savar Gano Sashto Kendro, 20 i 2001, *Rezwana Khan* (DACB). **Gazipur:** Rajendrapur, 29 vii 2002, *Rezia, Bushra, Momtaz & Harun* RK. 3673 (DACB). **Madhupur:** 12 v 1983, *Huq, Hassan & Islam* H. 5731 (DACB). **Mymensingh:** Majra Kura, Karaitala Sal forest, 24 v 1989, *Mia, Huq & Rahman* M. 2078 (DACB). **Rangpur:** Gobindogonj, 14 xii 1980, *Mia & Rahman* M. 4341 (DACB). **Sherpur:** Gajni forest, 27 iv 1986, *Huq & Mia* H. 7691 (DACB).

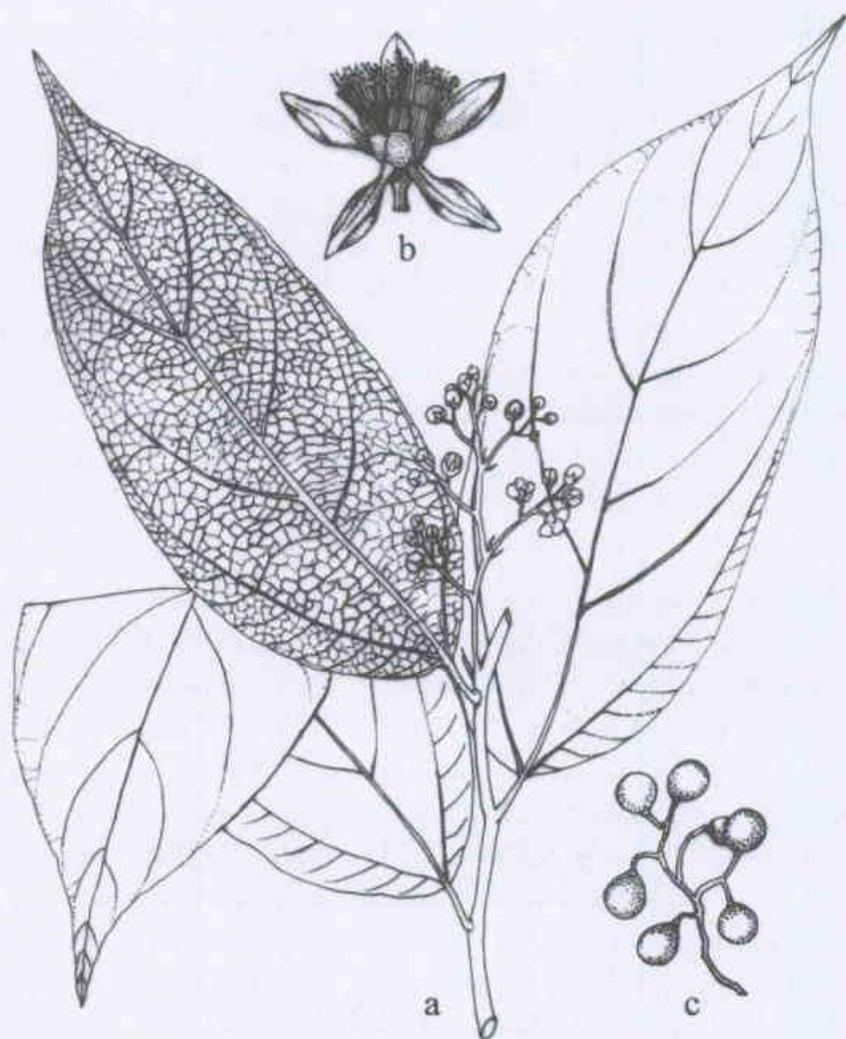


Figure 13. *Grewia nervosa* (Lour.) Panigr., a) habit sketch; b) flower; c) fruit.

**Sylhet:** Lawachara, 10 viii 1938, *G.K. Deka* 18125 (Assam). **Tangail:** Madhupur forest, 19 vii 1977, *M. Rahman* 582 (DACB).

India, Ceylon, Myanmar, China, Thailand, Vietnam, Laos, Malay Peninsula and Indonesia.

Wood is used as fuel. The plant is used in the treatment of digestive disorders, eczema and itch, small pox, typhoid fever, dysentery and syphilitic ulceration of the mouth (Deb, 1981).

***Grewia piscatorium*** Hance, *Ann. Sci. Nat. Bot.* 5 (5): 208 (1866). Naray. & R. Rao, *J. Ind. Bot. Soc.* 29: 179 (1950); Daniel & Chandrabose, *Fl. India* 3: 507 (1993); Tang *et al.*, *Fl. China* 12: 254-255 (2007); Barbhuiya and Gogoi, *Bangladesh J. Plant Taxon.* 17 (2): 146 (2010).

A shrub to small tree, many branched, up to 3 m high, branchlets sparsely stellate. Leaves 0.6-2.0 × 0.4-1.5 cm, ovate or elliptic, base narrowed, nearly membranous, apex rounded to obtuse, margin serrate or dentate, 3-nerved, scabrous, greenish when dry, lateral veins 3-nerved, stipule filiform, c. 1.5 mm; petiole 2.0-3.5 mm. Inflorescences in leaf-opposed or rarely axillary, umbellate cymes, peduncles up to 4 mm long, buds ca. 2.8 mm across, globose, grooved, pedicel as long as peduncle or slightly shorter. Bracts subulate, 2-3 mm. Sepals 4-5 × 1.4 mm, elliptic lanceolate, acuminate, tomentose. Petals 1.6-2.2 × 0.4-0.6 mm, oblong-obovate, glandular inside, glabrous outside. Androgynophore short. Stamens numerous, filaments slender, 1-3 mm long. Ovary hairy, ca. 2.8 mm across, ovoid, style glabrous, stigma 2-4 lobed. Fruit a drupe, 4-7.8 mm across, 2-4 lobed, lobes ovate, glabrous, 2-seeded. *Fl.*: & *Fr.*: 5-11. *In evergreen forests.*

**Sylhet:** Locality unknown, October 1935, *C.S. Purkayastha* 12449 (Assam).

India and China.

***Grewia rothii*** DC., *Prodr.* 1: 509 (1824). Dunn in Gamble, *Fl. Pres. Madras*: 118 (1915); Daniel & Chandrabose, *Fl. India* 3: 507-508 (1993); Mia & Khan, *Bangladesh J. Plant Taxon.* 8 (2): 57-62 (2001); Khan in Ahmed *et al.*, *Encyd. Fl. Fauna Bangladesh* 10: 390-391 (2009); *G. bicolor* Roth, *Nov. Pl. Sp.*: 240 (1821), *non* Juss.; *G. polygama* Roxb., *Fl. Ind.* 2: 588 (1832); *G. excelsa auct. non* Vahl (1790); Masters in Hook. f., *Fl. Brit. India* 1: 385 (1874-reprint 1961); Prain, *Beng. Pl.* 1: 283 (1903-reprint 2004); Heinig, *List Chittagong*: 7 (1925). **Fig. 14.**

A shrub or small tree, branchlets minutely stellate-tomentellous to stellate puberulous. Leaves 3.0-16.5 × 1.0-5.5 cm, ovate-oblong or ovate-lanceolate, base obtuse or subacute, apex acute to acuminate, margins serrulate, membranous, densely tomentose beneath, 3-4 nerved, petioles 5 mm long, minutely stellate-tomentellous, stipules subulate, 6 mm long, minutely stellate-tomentellous, Inflorescences axillary, clustered cymes, peduncles slender, 1.5-3.5 cm long, buds 3.5-5.0 mm across, subglobose, tomentose, pedicels 8-10 mm long, bracts 2.5 mm long. Sepals 5, 6 mm long, elliptic-oblong or elliptic-lanceolate, stellate tomentose outside, minutely puberulous inside. Petals 5, 3 mm long, ovate-lanceolate, glands 1 mm long, elliptic. Stamens many, filaments 3-4 mm long, unequal, glabrous, anthers small. Ovary 1.5 mm across, globose, tomentose, style 4 mm long, glabrous, stigma 4-lobulate, the lobes densely papillate. Fruit a drupe, 5 mm across, globose, tomentose, edible. *Fl. & Fr.*: 4-12. *Along roadsides.*

**Chattogram:** Sitakundo near Chandranath Hill, 9 i 1971, *Khan & Huq* K. 2343 (DACB); Bariadhala, 17 xi 1986, *Huq & Mia* H. 7993 (DACB); Hazarikhil, 29 x 1987, *Huq & Mia* H. 8562 (DACB). **Dhaka:** Locality & date unknown, *C.B. Clarke* 7603 (K). **Maulvibazar:** Madhabkundu Eco Park, Barolekha, 23 x 2011, *Sarder Nasir Uddin* N. 4828 (DACB). **Rangamati:** Dhebar Matha, 9 x 1998, *M.A. Rahman, D. Long, M.S. Khan, S.B. Uddin et al.* 3600 (HCU).

India, Sri Lanka & Australia, Tropical Africa.

Fruits are eaten by monkeys and the whitish bark is used for making string. The tree bears flowers profusely and is thus planted in home gardens. The bark gives a fiber used for making ropes (Deb, 1981).

**Grewia sapida** Roxb. ex DC., Prodr. 1: 512 (1824). Roxb., Fl. Ind. 2: 590 (1832); Masters in Hook. f., Fl. Brit. India. 1: 387 (1874-reprint 1961); Prain, Beng. Pl. 1: 283 (1903-reprint 2004); Kanjilal *et al.*, Fl. Assam 1: 164 (1934); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Ghafoor, Fl. Pakistan 75: 13 (1974); Daniel & Chandrabose, Fl. Ind. 3: 508 (1993); Phengklai, Fl. Thailand 6 (1): 18-19 (1993); Mia & Khan, Bangladesh J. Plant Taxon. 8 (2): 60 (2001); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 391 (2009); *G. pumilla* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 1: 227 (1825). **Fig. 15.**

Bengali: *Chuhura*

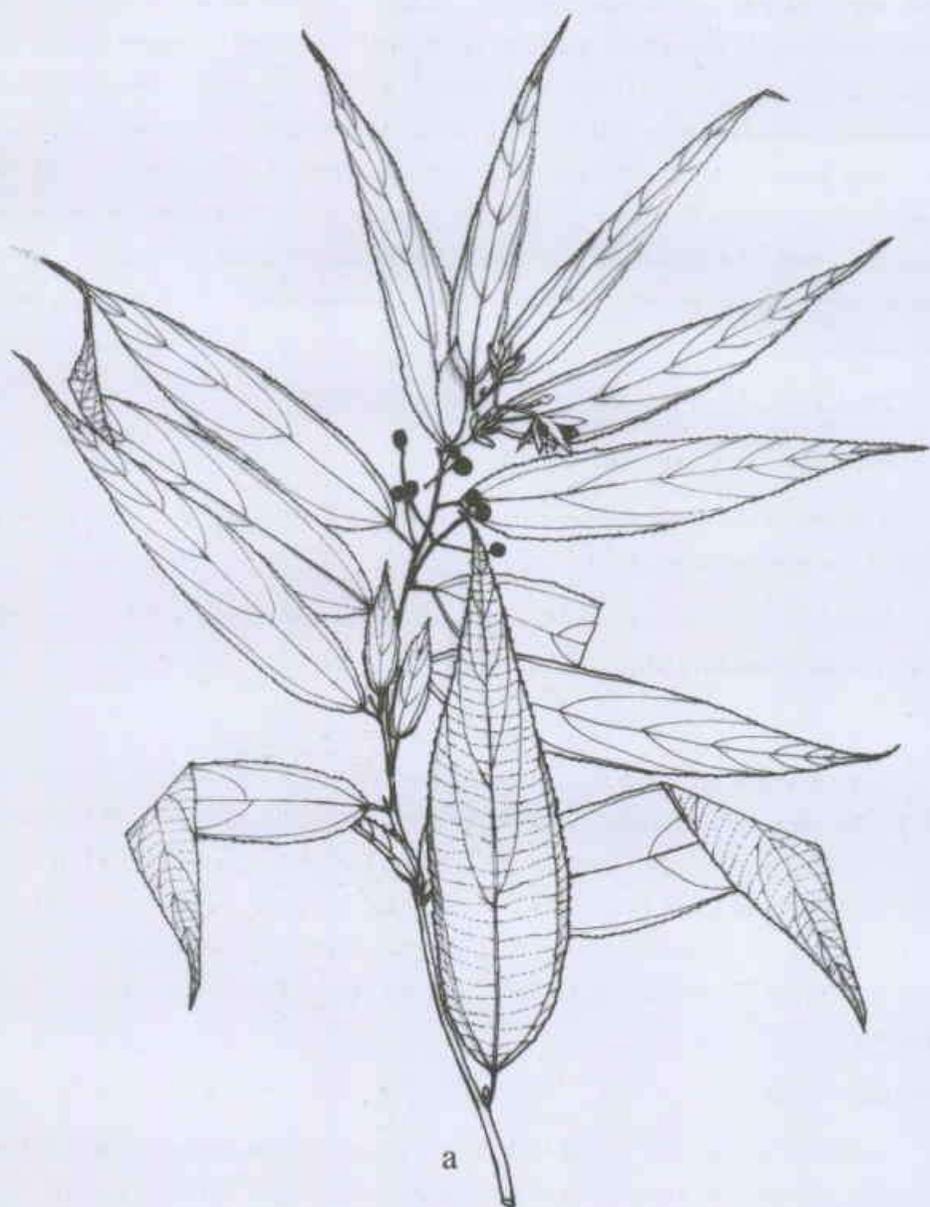


Figure 14. *Grewia rothii* DC., a) habit sketch.

A shrubs. Leaves 1.5-10.0 × 1.0-7.5 cm, ovate, broadly elliptic or suborbicular, base and apex subacute or rounded, margin coarsely double-serrate, scabrid above, tomentose-beneath, 5-7 nerved, petioles, up to 6 mm long. Inflorescences in axillary cymes, peduncles slender, 2-3 cm long, buds 6-8 × 5 mm, obovoid or oblong-obovoid, tomentose, pedicels slender, 7-10 mm long, divaricate, shorter than the petiole. Sepals 5, 8-12 mm long, oblong or oblanceolate, tomentose. Petals 5, yellow, entire, half the length of the sepals. Receptacle glabrescent. Stamens many, filaments 5-6 mm long, glabrous. Ovary 3 × 1.5 mm, elliptic-oblong, hirsute, stigma lobed. Fruit a drupe, 8 mm across, subglobose or broadly obovoid, obscurely 2-lobed, hirsute. *Fl. & Fr.*: 2-9. *Open dry places.*

**Dhaka:** Locality & date unknown, *C.B. Clarke* 6787 (K).

India, Pakistan, Nepal, Bhutan and Myanmar.

The ripe fruit is edible. Leaves are used as fodder. The bark yields a fibre, which is suitable for cordage (Khan, 2009).

Root paste is plastered around the fractured bone and bandaged using splints. Sour pulp is taken as a drink (Singh and Ali, 1998).

***Grewia sclerophylla*** Roxb. *ex* G. Don, Gen. Hist. 1: 550 (1831). Prain, Beng. Pl. 1: 283 (1903-reprint 2004); Heinig, List Chittagong: 7 (1925); Kanjilal *et al.*, Fl. Assam 1: 166 (1934); Alam, Woody Fl. Sylhet: 113 (1988); Daniel & Chandrabose, Fl. India 3: 509 (1993); Mia & Khan, Bangladesh J. Plant Taxon. 8 (2): 60 (2001); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 391-392 (2009); *G. scabrophylla* Roxb., Fl. Ind. 2: 584 (1832); Masters in Hook. f., Fl. Brit. India. 1: 387 (1874-reprint 1961).

**Fig. 16.**

Bengali: *Phalsa*

A shrub. Leaves 7-19 × 5.0-12.5 cm, rotund-ovate, obovate or obcordate, base rounded or subacute, apex marginate or acuminate, margin serrate, tomentose, 3-5 nerved, petioles 1.2 cm long. Inflorescences in axillary cymes, peduncles 2-8 mm long, buds 1.0-1.3 cm long, ovoid-oblong, ribbed, tomentose, ribbed, pedicels 0.5-1.2 cm long. Sepals 5, 1.2-1.5 cm long, lanceolate, ribbed, densely pubescent outside. Petals 5, white, 6.0 × 2.2 mm, oblong-obovate, obtuse, apex notched. Receptacle short, hispid.

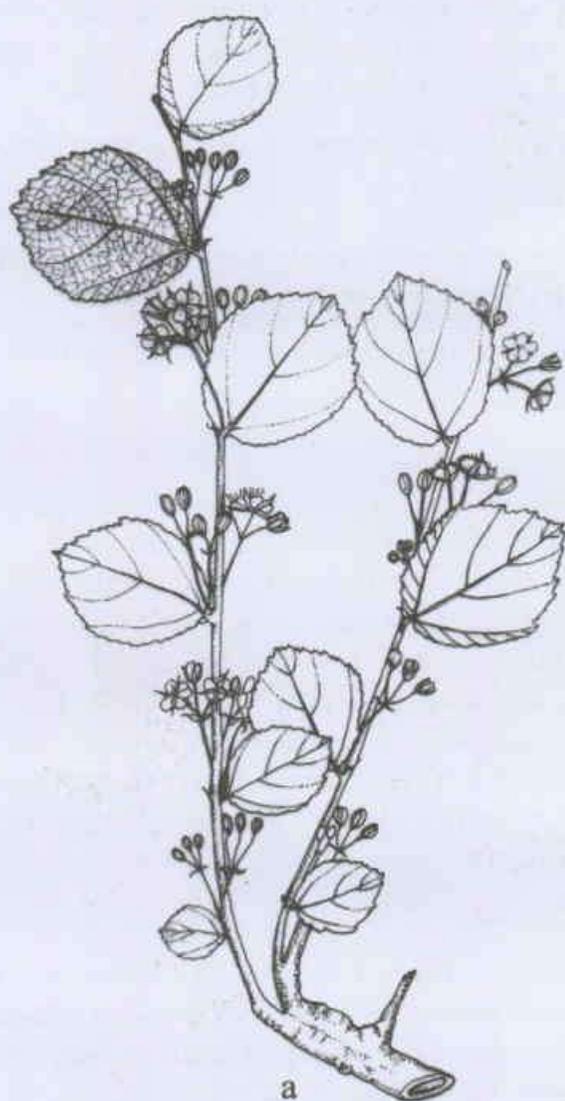


Figure 15. *Grewia sapida* Roxb. ex DC., a) habit sketch.

Androgynophore 4 mm long, glabrous excepting at the apex. Ovary  $2 \times 4$  mm, depressed-globose, hirsute, stigma 2-lobed. Fruit a drupe, 1.2-1.8 cm across, globose, stellate-tomentose. *Fl. & Fr.*: 4-1. *Scrub forests and village thickets.*

**Chattogram:** Locality & date unknown, *Hooker & Thomson* 498 (K).

India and Myanmar.

Fruit is edible and stem yields a good quality fibre. The crushed root is used in cough and in irritable condition of intestine and bladder (*Kirtikar et al.*, 1935).

The Santal community in India use decoction of root as an emollient enema (*Caius*, 1998).

***Grewia serrulata*** DC., *Prodr.* 1: 510 (1824). *Naray. & R. Rao*, *J. Ind. Bot. Soc.* 29: 179 (1950); *Alam*, *Woody Fl. Sylhet*: 113 (1988); *Daniel and Chandrabose*, *Fl. India* 3: 509-511 (1993); *Khan in Ahmed et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 392-393 (2009); *Barbhuiya and Gogoi*, *Bangladesh J. Plant Taxon.* 17 (2): 146 (2010); *G. laevigata auct. non Vahl* (1790); *Masters in Hook. f.*, *Fl. Brit. Ind.* 1: 389 (1874-reprint 1961); incl. *syns. G. multiflora auct. non A.L. Juss.* (1804); *Masters in Hook. f.*, *Fl. Brit. India* 1: 388 (1874-reprint 1961); *G. disperma auct. non Rottler ex Sprengel* 1825; *Dunn in Gamble*, *Fl. Pres. Madras*: 118 (1915); *G. glabra* *Blume*, *Bijdr.* 115 (1825); *Naray. & R. Rao*, *J. Ind. Bot. Soc.* 29: 179 (1950); *G. barberi* *J.R. Drumm. ex Dunn in Gamble*, *Fl. Pres. Madras*: 118 (1915). **Fig. 17.**

Bengali: *Panisara*, *Pichandi*

A shrub or small tree. Leaves  $1-18 \times 1.5-7.0$  cm, lanceolate, ovate-lanceolate, elliptic-ovate or obovate, base rounded or narrowed, apex acute or acuminate, sometimes obtuse, margin sharply serrate, glabrous or glabrescent, 3-nerved, petiole up to 1.5 cm long, stipules subulate. Inflorescences in axillary, umbellate cymes, peduncles 1-2 together, 1.5-2.5 cm long, buds  $8-15 \times 5-8$  mm, ovoid, ovoid-oblong or subglobose, tomentose, pedicels up to 2.5 cm long. Sepals 5,  $9-16 \times 3-5$  mm, oblong or lanceolate, fleshy, 2-ribbed, green outside, white within, tomentose. Petals 5, c  $3.5 \times 1.5$  mm, ovate or obovate, greenish white, membranous, tapering at the glabrescent apex, glands slightly shorter than petals. Receptacle 2-3 mm long, grooved, pubescent in upper half. Stamens numerous. Ovary  $2.5 \times 1.5$  mm, ovoid, pilose, style glabrous, stigma 5-lobed, lobes laciniate. Fruit a drupes, 5-15 mm across, 2-lobed, globose when not lobed, dry black, glabrous when dry. *Fl. & Fr.*: 4-3. *Moist deciduous and evergreen forests.*

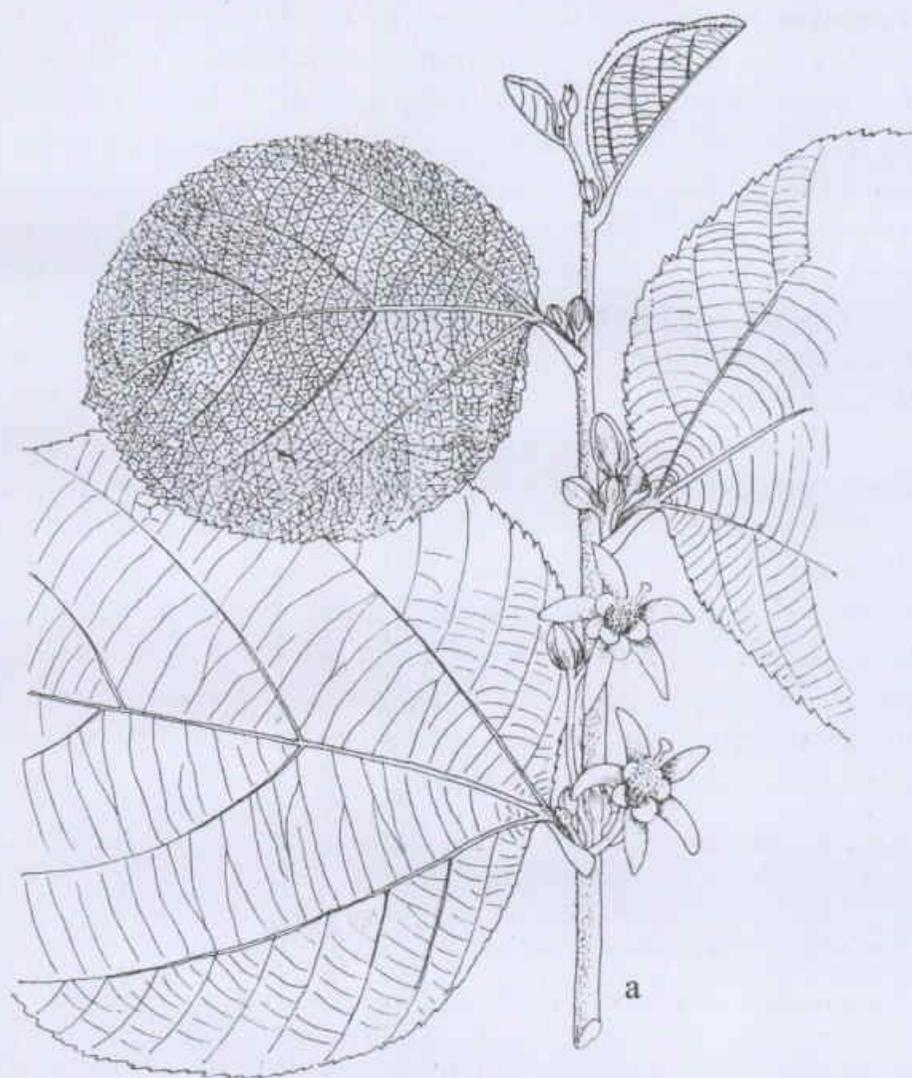


Figure 16. *Grewia sclerophylla* Roxb. ex. G. Don, a) habit sketch.

**Bandarban:** Ruma bazar, 28 x 1984, *Khan et al.*, K. 6747 (DACB), Chimbuk hill, 27 xi 1983, *Khan et al.*, K. 6515 (DACB). **Chattogram:** Bariadhala, 12 x 1900 (CAL), ix 1898, *Mokim* (CAL); Foy's Lake, 9 viii 1989, *Huq et al.*, H. 9333 (DACB); Jaldi Range, 31 xii 1989, *Khan, Huq & Alam* K. 8233 (DACB); Bariadhala, 29 x 1978, *Huq, Rahman & Mia* H. 3938 (DACB); Chunati, 8 x 1989, *Khan, Huq & Alam* K. 8131 (DACB); *Subalong*, 22 xi 1980, *Khan, Huq, Rahman & Mia* K. 6163 (DACB); Chandranath Hill, 23 x 1985, *Khan & Mia* K. 723 (DACB); Bariadhala, 06 x 1997, *Chandan K Dey* 1975 (HCU). **Chittagong Hill Tracts:** Manikchari, 21 xi 1980, *Khan et al.*, K. 6122 (DACB); Mainimukh, Kalokhuicha forest, 28 xii 1981, *Huq, Rahman & Mia* H. 5436 (DACB). **Dhaka:** Savar, 1 xi 1970, *Momtaz* 131 (DUSH); Mirpur, 28 viii 1969, *S. Nazimuddin* 108 (DUSH); Curzon Hall, 10 x 1996, *M.S. Khan* 9644 (DACB). **Dinajpur:** Singhra, 15 i 1974, *Khan & Huq* K. 3625 (DACB). **Khagrachari:** Gomoti, Panchari 23 iv 2011, *S N. Uddin* 4597 (DACB). **Mymensingh:** Dokhla, 17 ix 1980, *Mia and Rahman* M. 307 (DACB). **Rangamati :** Jarultala, Sitapahar, Kaptai, 26 x 2002, *Sarder Nasir Uddin* 1613 (DACB); Rampahar, 1 x 2002, *Sarder Nasir Uddin* 1750 (DACB); Rampahar, 15 xii 2004, *Sarder Nasir Uddin* 2549 (DACB). **Rajshahi:** Nawhati, 13 xii 1972, *A.M. Huq* 692 (DACB). **Sherpur:** Gazni forest, 5 v 1982, *Mia et al.*, M. 700 (DACB). **Sylhet:** Lawachara, 19 viii 1938, *R. N. De* 19056 (Assam). **Tangail:** Gorai, 19 viii 1973, *A.M. Huq* 1068 (DACB).

India, Pakistan, Nepal, Bhutan, Myanmar, Indo-China, Australia, Malesia and Tropical Africa.

The leaves are used as fodder (Khan, 2009).

The bark yields a fiber which is suitable for cordage (Deb, 1981)

**Grewia tenax** (Forsskal) Fiori, *Agric. Colon.* 5: Suppl. 23 (1912). Ghafoor, *Fl. Pakistan* 75: 7 (1974); Daniel and Chandrabose, *Fl. India* 3: 511 (1993); Mia and Khan, *Bangladesh J. Plant Taxon.* 3 (1): 77-79 (1996); Mia and Khan, *Bangladesh J. Plant Taxon* 8 (2): 61 (2001); Khan in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 393 (2009); *Chadara tenax* Forskal, *Fl. Aegypt-Arab.*: 105 (1775); *Grewia populifolia* Vahl, *Sym. Bot.* 1: 33 (1790); Masters in Hook.f., *Fl. Brit. India* 1: 385 (1874); *G. betulaefolia* A.L. Juss., *Ann. Mus. Natl. Hist. Nat.* 4: 92. t. 2 (1804); Dunn in Gamble, *Fl. Pres. Madras*: 117 (1915). **Fig. 18.**

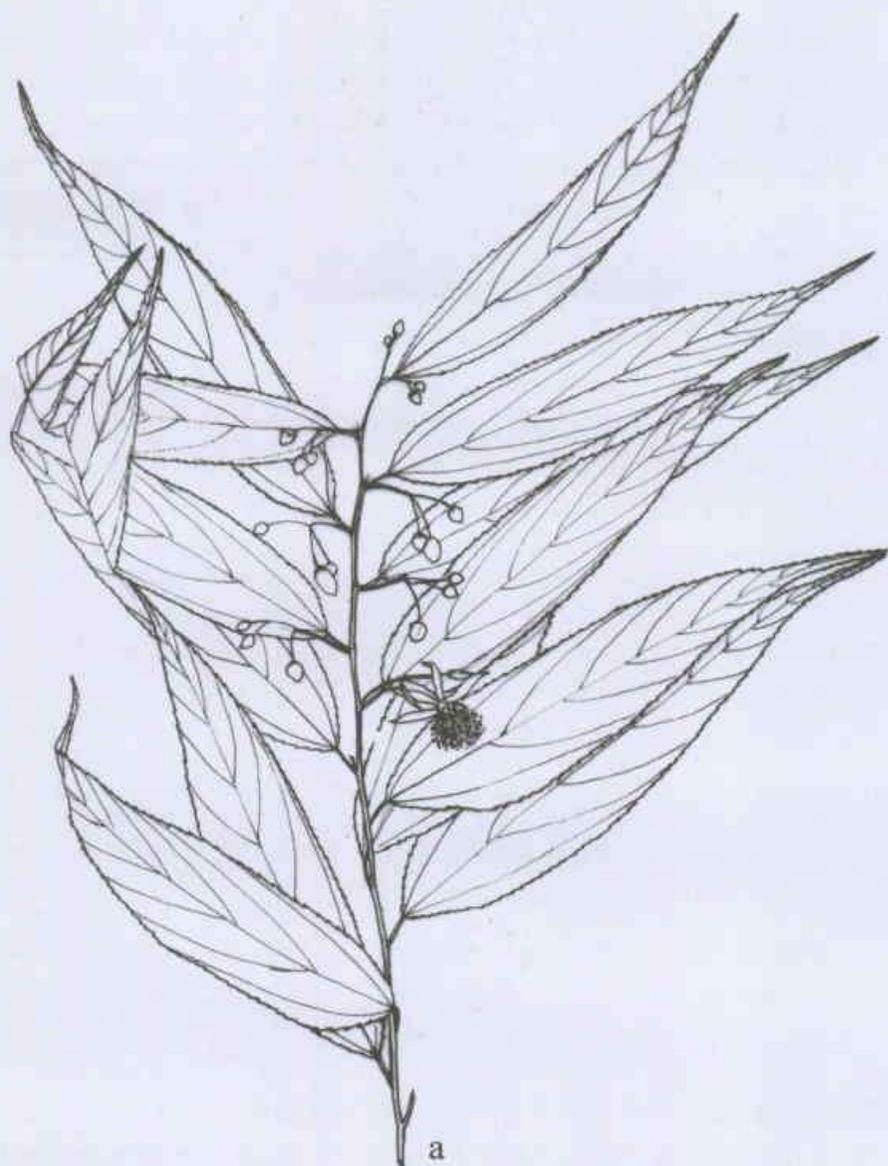


Figure 17. *Grewia serrulata* DC., a) habit sketch.

Bengali: *Kango, Gwangi*

A much-branched shrub, 1-3 m high. Leaves 0.5-5.0 × 0.5-2.8 cm, coriaceous, broadly ovate, obovate, oblong or rotund, base rounded or obtuse, margin coarsely dentate, scabrid above, glabrous or sparsely hairy beneath, 3-nerved, petioles 1-5 cm long, hairy, stipules linear-lanceolate, caducous. Inflorescences in axillary or leaf-opposed cymes, peduncle longer than the petiole, up to 1.5 cm long, white, buds 8-10 mm long, oblong, tomentose, pedicels up to 4.5 mm long, stellate tomentose. Sepals 5, 1.0-1.6 cm long, linear-oblong, tomentose outside. Petals 5, white, c 6.3 mm long, linear-oblong, obtuse, usually notched at apex, ciliate at base, glands 2 mm long. Receptacle 2.5 mm long, ribbed, glabrous, pilose at apex. Androgynophore 0.5 mm long. Stamens many, filaments slightly shorter than style or subequal, 5 mm long. Ovary 2.5 mm across, subglobose, 4-lobed, hairy, style c 8-10 mm long, clavate, glabrous, rarely sparsely stellate hairy, stigma somewhat cupular, 4-5 lobed. Fruit a drupe, usually 2-4 lobed, orange-yellow with reddish tinge. *Fl. & Fr.*: 1-12. *Cultivated fields and fallow lands*.  $2n=36$  (Fedorov, 1969).

**Mymensingh:** Bijoypur near Rainkhong missionary, 5 xi 1983, *Huq et al.*, H. 6229 (DACB). **Sylhet:** Sylhet to Jontiapur road, Peerbazar, 11 x 1979, *Khan & Mia* K. 5701 (DACB); M.C. College compound, 12 x 1973, *Khan, Huq & Hassan* K. 3240 (DACB).

Afghanistan, Pakistan, India, Sri Lanka, Mauritius, W. Asia and Tropical Africa.

*Fruits* are acrid and are eaten under the name Ginkgo. The plant is commonly grazed by camels, goats and sheep (Khan, 2009).

In Jhalawar (India), the decoction of the wood is given to cure cough and pains in the side (Kirtikar *et al.*, 1935).

***Grewia tiliifolia*** Vahl, *Symb. Bot.* 1: 35 (1790). Masters in Hook. f., *Fl. Brit. India* 1: 386 (1874-reprint 1961), 'tiliaefolia'; Prain, *Beng. Pl.* 1: 283 (1903-reprint 2004); Heinig, *List Chittagong*: 7 (1925); Daniel & Chabrabose, *Fl. India* 3: 511-513 (1993); Khan in Ahmed *et al.*, *Encycl. Fl. Fauna Bangladesh* 10: 393-394 (2009); Haines, *Bot. Bihar & Orissa* 1: 95. (1961); *G. arborea* Roth, *Nov. Pl. Sp.*: 24 (1821); *G. leptopetala* Brandis, *Indian Trees*: 180 (1906). **Fig. 19.**

Bengali: *Dhamin, pharsa*

English: *Linden Leaf*

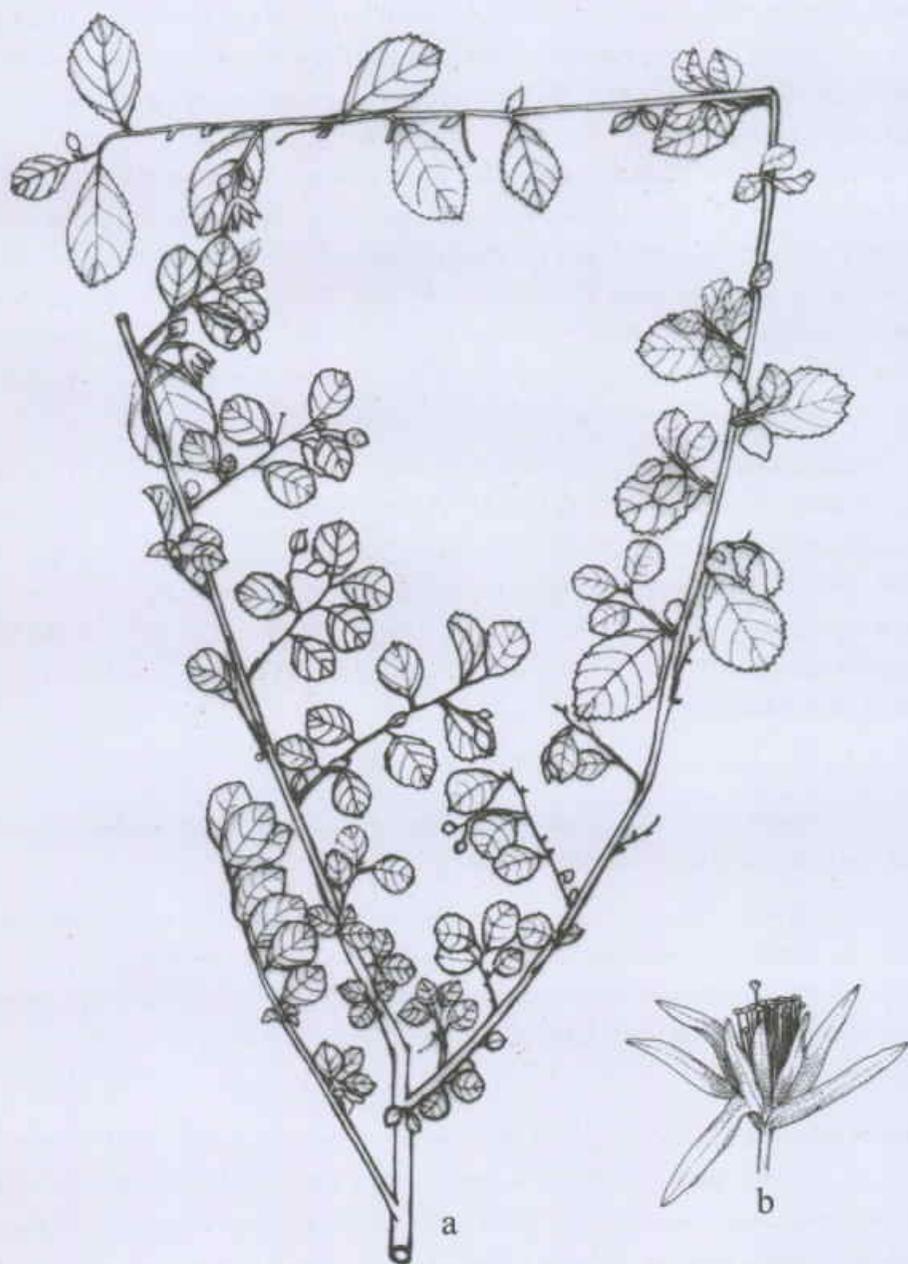


Figure 18. *Grewia tenax* (Forsskal) Fiori, a) habit sketch; b) flower.

A tree, c 6-15 m tall, bark peeling off. Leaves 1.7-36.0 × 1-24 cm, elliptic, elliptic-ovate, ovate or ovate-rotund, base obliquely cordate, apex acuminate or rounded, margin serrate to crenate-serrate, glabrescent above, sparsely pubescent or tomentose beneath, 5-nerved, petioles up to 4 cm long. Inflorescences 3-6, in axillary cymes, peduncles 1-2 cm long, buds 3-6 mm long, subglobose or obovoid-oblong, tomentose, pedicels 4-13 mm long. Sepals 5, 5-8 × 3 mm, elliptic or lanceolate, subacute, tomentose outside. Petals 5, yellow, 3.0-4.5 × 1.5 mm, elliptic-oblong or spatulate, obtuse, notched at the apex, sparsely ciliate at the base, glands 0.5 mm long. Receptacle minute, glabrous excepting at the apex. Stamens many, filaments 4 mm long. Ovary 1.2 mm across, globose, sparsely hirsute, stigma 4-lobed. Fruit a drupe, 2.5-5.0 × 7-10 mm, black, distinctly 2-lobed, lobes globose, sparsely hirsute. *Fl. & Fr.*: 1-10. *Dry lowlands and woodlands*. 2n=18 (Kumar and Subramaniam, 1986).

**Chattogram:** Harishpur, 10 ii 1988, *M.K. Mia* 1506 (DACB); Sitakundu, 10 v 1996, *M.A. Rahman, Pradip, Chandan & Sujit* 211 (HCU). **Dinajpur:** Tetulia, 20 x 1976, *Huq, Rahman and Mia* H. 2949 (DACB). **Noakhali:** Momarijpur, 18 xi 1981, *Huq et al.* H. 5254 (DACB). **Panchagarh:** Mirgarh border, 6 vi 1989, *Huq et al.* H. 9273 (DACB). **Sunamganj:** Takerghat, 14 x 1985, *Khan, Huq & Mia* K. 7174 (DACB). **Sylhet:** Moulvibazar, 6 x 1979, *Khan & Mia* K. 5647 (DACB); Jaflong forest, 21 x 1986, *Huq & Mia* H. 7927 (DACB).

India, Sri Lanka and Tropical E. Africa.

The wood is tough and is used for making oars, shafts and gun stocks, while the bark is good for making strings (Khan, 2009).

The leaves are eaten as vegetable. Fruits are also eaten. The bark is employed externally to remove irritation of cow itch. The wood made into powder acts as an emetic, and is employed as an antidote to opium poisoning. The *Munda* ethnic people apply stem bark paste for setting dislocated joints in cattle in India (Caius, 1998).

**Grewia villosa** Willd., *Ges. Naturf. Freunde Berlin Neue Schr.* 4: 205 (1803). *Master* in *Hook. f., Fl. Brit. India* 1: 388 (1874-reprint 1961); *Ghafoor, Fl. Pakistan* 75: 11-13 (1974); *Daniel and Chandrabose, Fl. India* 3: 515 (1993); *Khan in Ahmed et al., Encycl. Fl. Fauna Bangladesh* 10: 394-395 (2009); *G. orbiculata* G. Don, *Gen. Hist.* 1: 551 (1831); *G. corylifolia* A. Rich. in *Guillemin et al., Fl. Seneg. Tent.*: 95. t. 20 (1831). **Fig. 20.**

Bengali: *Banta*

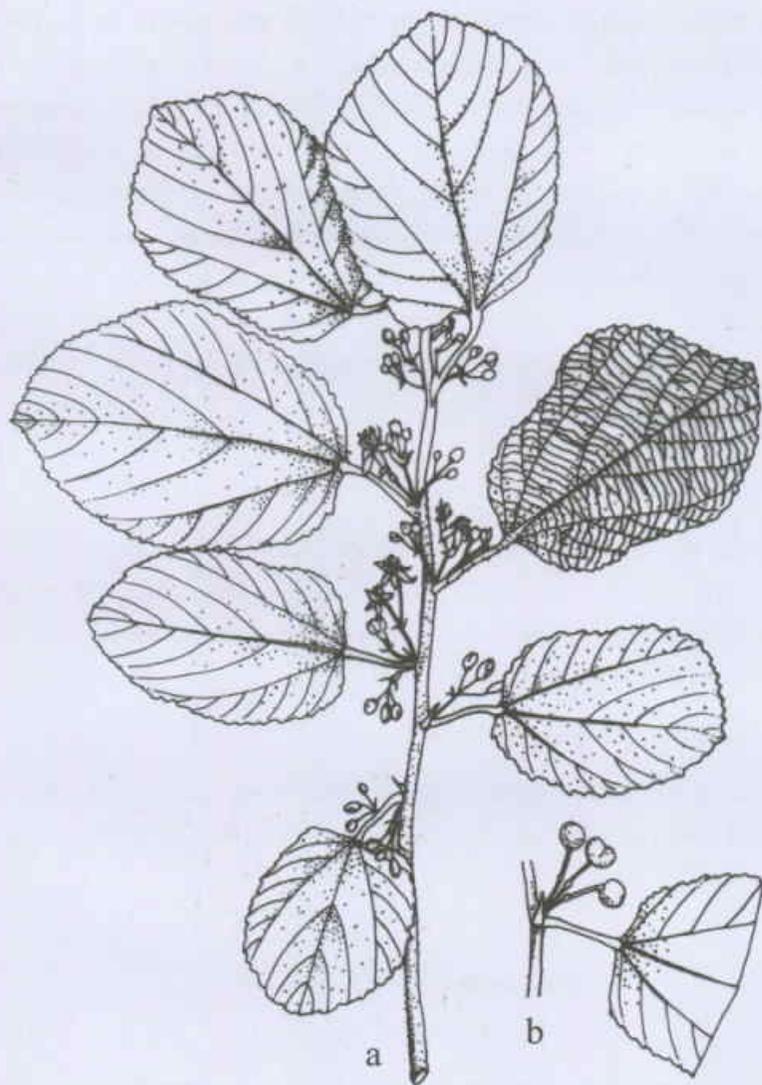


Figure 19. *Grewia tiliifolia* Vahl, a) habit sketch; b) fruits and a leaf.

A shrub or small tree, 3-5 m high, herbaceous portions covered with long soft hairs. Leaves 3-15 × 3-12 cm, rotund-ovate, orbicular or cordate, base cordate, apex rounded to abruptly acuminate, margin crenate or serrulate, acabrous above, villous beneath, 5-nerved, petioles up to 4 cm long, filiform, velvety, thickened at apex; stipules 6-8 mm long, ovate-oblong or linear, pilose, caducous, turning brownish. Inflorescences in axillary or leaf-opposed cymes, peduncles 1-5 mm long, buds 10 × 3 mm, ellipsoid, pilose, pedicels 2-5 mm long. Sepals 5, 1 cm long, oblanceolate, acute, villous outside. Petals 5, dull yellow, 5 × 1.8 mm, notched at apex, spatulate, emarginate, narrowly ovate, glabrous inside, villous on margins near base and with a few, long hairs at the back; glands 1.5 mm long, obovoid. Receptacle 1 mm long, angular, glabrous, ciliate along toothed-rim. Stamens many, filaments 5 mm long; anthers yellow, glabrous. Ovary 2 mm across, subglobose, densely villous, stigma lacinate, green. Fruit a drupe, 1.2-1.5 cm across, subglobose, obscurely 4-lobed, yellowish-red, densely villous. *Fl. & Fr.*: 3-11. *Scrub and deciduous forests*. 2n=36 (Kumar and Sabramaniam, 1986).

This plant was recorded from Bangladesh by Khan (2009). During field visits all over Bangladesh within the period of 1970-2016, this plant was not observed by the authors any where in the country. Description of the plant provided here is based on Khan (2009) and Daniel & Chandrabose (1993).

India, Pakistan, West Asia and Tropical Africa.

The fruits are eaten by shepherds (Khan, 2009). Fresh bark is used with sugar and water to treat gonorrhoea and urinary complaints attended with irritability of the bladder (Caius, 1998).

**Muntingia** L., *Sp. Pl.*: 509 (1753).

Type species: *M. Calabura* L.

Shrubs or small evergreen trees, up to 8 m tall. Leaves alternate, oblong-lanceolate, acuminate, base very oblique, irregularly or coarsely serrate, green above, densely grey or white stellate, pubescent below. Flowers pedicellate, single, axillary or supra-axillary, 2-3 flower-stalks arising together, white, medium-sized. Sepals mostly 5, long acuminate, free, hairy on both sides. Petals 5, obovate, free, glabrous. Stamens numerous, free, inserted on an annual disk, anthers rounded. Ovary densely surrounded by glandular hairs, 5-7 locular, ovules numerous, stigmas sessile, thick, lobed, sulcate.

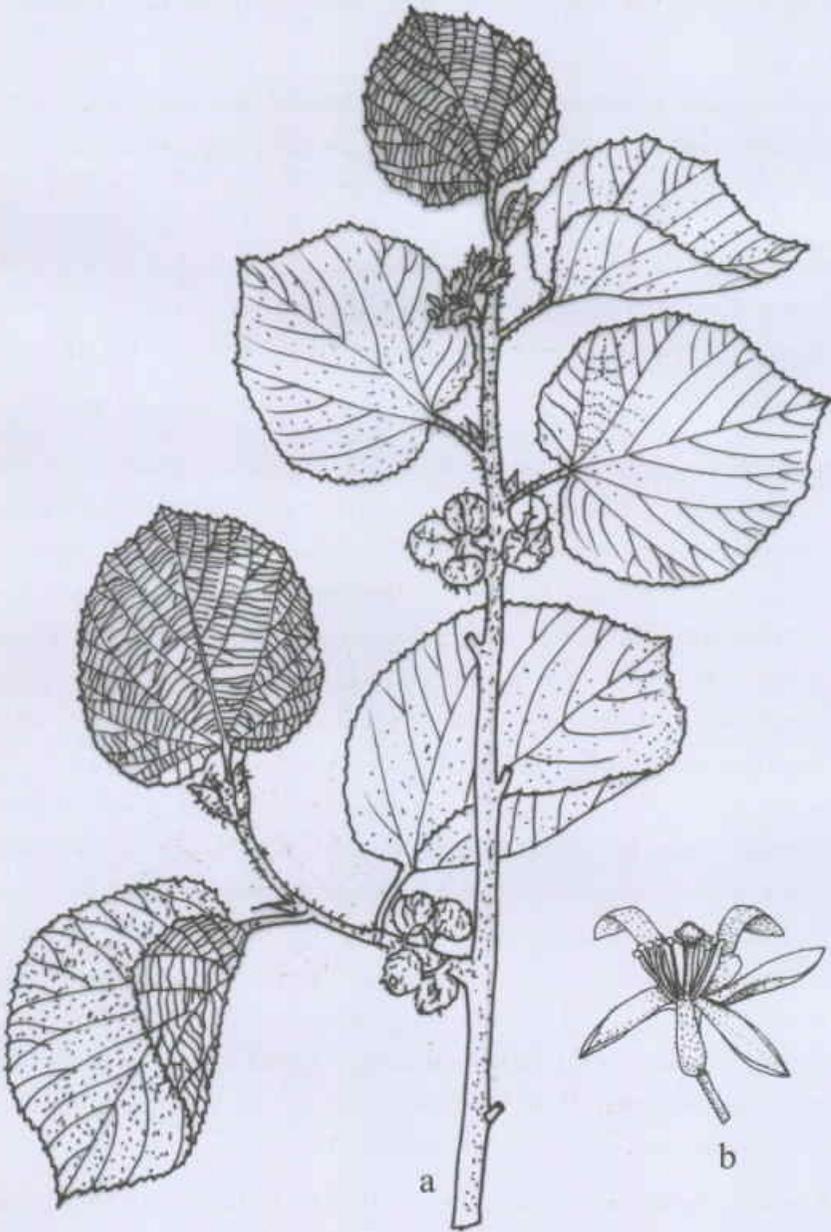


Figure 20. *Grewia villosa* Willd., a) habit sketch; b) flower.

Fruit a berry, ovoid-globose, smooth, indehiscent. Seeds numerous, small, immersed in sweet pulp.

A monotypic tropical American genus, widely cultivated and spontaneous in Asia (Phengklai, 1993). In Bangladesh, this genus is represented by only 1 species

**Muntingia calabura** L., Sp. Pl.: 509 (1753). Gagnep., Fl. Gén. 1.-c. 1: 562 (1911); Craib, Fl. Siam. En. 1: 193 (1925); Phengklai, Fl. Thailand 6 (1): 43-44 (1993); Mia & Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 395-396 (2009). **Fig. 21.**

English: *Jamaican Cherry*

A large shrub or small evergreen tree, up to 8 m tall, with dense, spreading crown, branches drooping, bark smooth, pale brownish-grey, tough fibrous, branchlets densely villous, glandular pubescent. Leaves alternate, oblong-lanceolate or narrowly ovate, 5-10 × 1.5-4.0 cm, obliquely subcordate at the base, acuminate at the apex, serrate, chartaceous, glandular hairy above, woolly pubescent beneath, veins 3-5 pairs on either side of midrib, petioles 5-6 mm long, stipules 1, c 5 mm long, filiform, hairy. Inflorescence sessile, usually supra-axillary, flower-stalks arising together, with 3 filiform, small bracts at the base. Flowers 1.5-2.5 cm across, white, pedicels c 2.0-2.5 cm long. Sepals 5, lanceolate, 1.5 cm long, caudate-acuminate, valvate, shortly connate at the base, densely pubescent on both surfaces. Petals 5, thin, obovate or suborbicular, shortly clawed, as long as sepals, imbricate. Intra-staminal disk annular, bearing a ring of hairs on exterior margin. Stamens many, c 1 cm long, anthers elliptic, dorsifixed, versatile, longitudinally dehiscent. Ovary superior, ellipsoid, numerous, style absent, stigmas knob-like, 5-ridge. Fruit a berry, subglobular, 1.0-1.5 cm across, appearing imperfectly many-locular, red or yellow with ridged stigma at the top and withered stamens at the base, pulp juicy, sweet. Seeds numerous, obovoid or ellipsoid, minute. *Fl. & Fr.*: 1-12. *Cultivated and also naturalized in shady waste places.*

**Dhaka:** B.C. Chowdhury's garden, 18 i 1941, *S.K. Mukherjee* (DUSH); Dhaka University Bot. Garden, 30 viii 1946, *S.K. Sen* (DUSH); 14 x 1949, *S.K. Sen* (DUSH); Dhanmondi, 1 vii 1982, *M.K. Mia* 876 (DACB). **Sirajganj:** Locality unknown, 6 iv 1974, Khurshid Nahar (DUSH).

Native of Jamaica, now naturalized in many parts of tropical America and some tropical Asian countries.

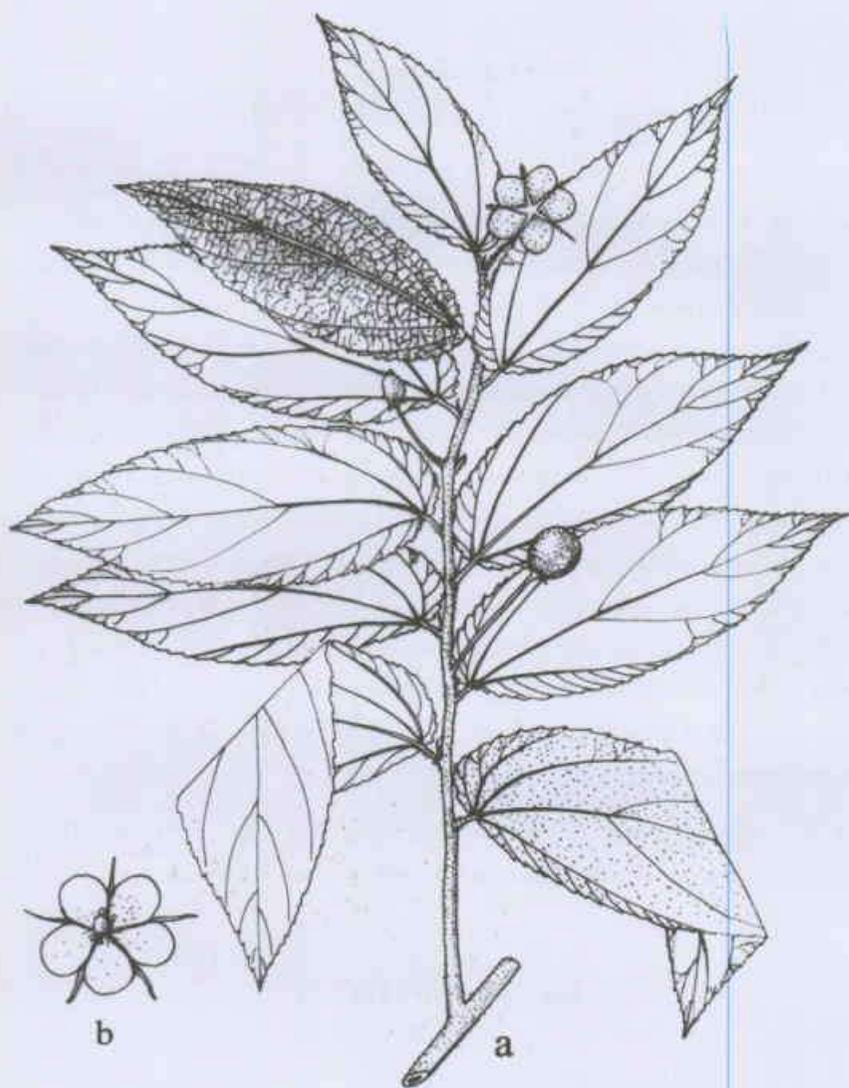


Figure 21. *Muntingia calabura* L., a) habit sketch; b) flower.

Ripe fruit edible. Bark used for cordage (Phengkklai, 1993). In West Indies, an infusion of the leaves are used as tea.

**Triumfetta L.,**

Sp. Pl. ed. 1: 444 (1753); Gen.Pl. ed. 5: 203 (1754).

Type: *T. lappula* L.

Annual herbs or herbaceous shrubs, the pubescence usually of stellate hairs. Leaves simple, alternate, petiolate, spirally arranged, 3-5 nerved from the base, serrulate, with entire or lobed margins, basal serrations mostly glandular; stipules persistent, rarely fugaceous, Inflorescences axillary or leaf-opposed, the cymules usually 3- flowered, clustered. Flowers pedicellate, hermaphrodite, 5-merous, bisexual Sepals 5, free, often hooded, valvate, free, with apical appendages, hairy outside, glabrous inside. Petals 5, free, imbricate, mostly ciliate and pitted-glandular at base, rarely petals absent. Stamens many, or rarely twice as many as sepals, free, inserted above 5-angular receptacle, anthers dorsifixed, subglobose, opening lengthwise. Carpels 2-5, syncarpous; ovary superior, sessile, setose, sometimes tuberculate, 2-5 loculed; each locule with 2 ovules; style filiform, subulate; stigma pointed, 2-5 lobed. Fruit a capsule, indehiscent or separating into cocci, echinate or setose, rarely tuberculate all over, bristles often hooked at apex, 2-5 loculed; locules 1-or 2-seeded. Seeds ovoid to obovoid, pendulous, glabrous; embryo straight; cotyledons flat, foliaceous.

The genus is represented by 160 species in tropical region of the world (Daniel and Bose, 1993). In Bangladesh, this genus is represented by only 5 species.

**KEY TO THE SPECIES**

- |   |                             |                     |
|---|-----------------------------|---------------------|
| 1 | Fruit globose               | 2                   |
| + | Fruit oblong                | <b>T. pentandra</b> |
| 2 | Fruit 1 cm across or more   | <b>T. obliqua</b>   |
| + | Fruit less than 1 cm across | 3                   |
| 3 | Spines straight             | 4                   |
| + | Spines uncinat              | <b>T. pilosa</b>    |

4	Spines glabrous	5
+	Spines tomentose	<b>T. tomentosa</b>
5	Petals orange, stigma 4-lobed	<b>T. annua</b>
+	Petals Yellow, stigma 2-3-lobed	<b>T. rhomboidea</b>

**Triumfetta annua** L., Mant. Pl.: 73 (1767). Masters in Hook. f., Fl. Brit. India 1: 396 (1874-reprint 1961); Prain, Beng. Pl. 1: 285 (1903-reprint 2004); Ghafoor, Fl. Pakistan 75: 16 (1974); Daniel & Chandrabose, Fl. India 3: 518 (1993); Phengkklai, Fl. Thailand 6 (1): 45-46 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 396-397 (2009); *T. triclada* Link, Enum. Hort. Berol. Alt. 2: 5 (1822); *T. trichoclada* DC., Prodr. 1: 507 (1824); *T. suffruticosa* Bl., Bijdr.: 113 (1825); *T. schimperi* Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 83 (1847). **Fig. 22.**

English: *Burweed*

An erect annual herb, up to 1 m high, nearly glabrous. Leaves 5-11 x 2-6 cm, ovate-lanceolate, cuneate at the base, acute to acuminate at the apex, irregularly serrate, sparsely hairy on both surfaces, 3-5 nerved; petioles up to 4 cm long, hairy on upper surface; stipules 5 mm long, subulate, hairy. Cymes leaf-opposed, 3-flowered, pedunculate. Flowers 8 mm across; pedicels 2 mm long. Sepals 5, 4 mm long, lorate, cucullate, awned. Petals 5, orange-coloured, nearly as long as sepals, spatulate, obtuse. Stamens 10. Carpels 4, 5-8 mm across, ovary globose, hairy, 4-loculed; style as long as stamens; stigma 4-lobed. Fruit a capsule, 5-8 mm across, globose, glabrous, 4-5 mm long, covered with conicle, glabrous spines. *Fl. & Fr.*: 8-3. *Dry Places*.  $2n=32$  (Kumar and Subramaniam, 1986).

**Bandarban:** Ruma, 5 xii 2007, *Bushra, Habib and Mofiz* B. 588 (DACB). **Chattogram:** Jungle, Chunati, 30 xii 1989, *Khan, Huq & Alam* K. 8157 (DACB). **Cox's Bazar:** Harbang, Boalmara, Nalbania, 26 xii 1988, *Khan, Mia, Alam & Yusuf* K. 7933 (DACB). **Sylhet:** Lowachera, 19 i 1963, *M.S. Khan* 460 (DUSH); Faizabad Hills, 18 xii 1966, *P. Bhattacharjee* 70 (DUSH); Jaintiapur, 19 x 1986, *Huq & Mia* 7855 (DACB). **Fig. 23.**

China, India, Nepal, Thailand and Malesia to Tropical Africa.



Figure 22. *Triumfetta annua* L., a) habit sketch.

Leaves are used as vegetable. Root is diuretic. The leaves and flowers are used against leprosy (Khan, 2009).

Flowers with sugar and water are given in gonorrhoea to alleviate burning sensation during urination. Hot infusion is taken to facilitate childbirth (Deb, 1981).

**Triumfetta obliqua** Roth, Nov. Pl. Sp.: 224 (1821). Daniel & Chandrabose, Fl. India 3: 518-519 (1993); Mia & Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 397-398 (2009); *T. cana* Blume, Bijdr.: 116 (1825); Masters in Hook. f., Fl. Brit. India 1: 396 (1874-reprint 1961); Heinig, List Chittagong: 8 (1925). **Fig. 23.**

A suffruticose herb, 0.5-1.5 m high, densely stellate-tomentose. Leaves 2-12 × 1-5 cm, ovate-oblong, subcordate to subobtusate at the base, acuminate at the apex, unequally serrate, especially densely stellate-tomentose beneath, 3-5 nerved; petioles up to 3 cm long, tomentose; stipules 4 mm long, subulate, hairy. Flowers in dense, axillary and leaf-opposed fascicles, buds densely appressed gray-white puberulent; pedicels 1.5 mm long. Sepals 5-6 mm long, oblong, awned, tomentose. Petals orange or yellowish, 5-7 mm long, oblong-spathulate, slightly shorter than sepals, base shortly stalked, ciliate. Stamens 10-12, or rarely more. Ovary 4-loculed, spiny, oblong; stigma 3-5 lobed. Fruit a capsule, 12-15 mm across, oblong to globose, densely pubescent; spines 5 mm long, hispid with a transparent, straight point. Seeds oblong-ovate, black. *Fl. & Fr.*: 6-12. *In a dry open places.*

**Chattogram:** Cantonment, 3 i 1969, *Din Mohammed* (DUSH). **Sylhet:** Jaintiapur Forest area, 1 x 1983, *Huq, Rahman, Mia & Mahbuba* H. 6222 (DACB).

India, Pakistan, Sri Lanka, Taiwan, Cape Verde Islands and Africa.

**Triumfetta pentandra** A. Rich. in Guillemain *et al.*, Fl. Seneg. Tent. 93. t. 19 (1831). Daniel & Chandrabose, fl. India 3: 519-519 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 398 (2009); *T. neglecta* Wight & Arn., Prodr.: 75 (1834); Masters in Hook. f., Fl. Brit. India 1: 396 (1874-reprint 1961); Prain, Beng. Pl. 1: 285 (1903-reprint 2004); Gamble, Fl. Madras 1: 86 (1915-reprint 1967); Gafoor, Fl. Pakistan 75: 19 (1974); *T. rhomboidea* Jacq. var. *pentandra* (A. Rich) J.L. Ellis in Bull. Bot. Surv. India 24: 209 (1983). **Fig. 24.**



Figure 23. *Triumfetta obliqua* Roth, a) habit sketch.

An erect, annual herb, 25-60 cm tall, much branched from base. Stem subscabrous, stellate hairy. Leaves 3-10 × 3-8 cm, basal leaves rhomboid-ovate, entire or palmately 3-lobed; upper ones ovate-lanceolate, unlobed, cuneate at base, acute or acuminate at apex, crenate-serrate, simple-hairy above, stellate-hairy beneath, 3-5 nerved; petioles 4-5 cm long, densely pubescent; stipules 5-6 mm long, subulate, ciliate and hispid with glandular hairs along margins. Flowers in leaf-opposed, shortly pedunculate, cymose clusters forming interrupted racemes, shortly pedicellate, 4-5 mm across; bracts 2-3 mm long, linear, hairy, Sepals 5, 2.5 mm long, free, cucullate and awned at the apex, sparsely stellate hairy. Petals 5, yellow, as long as sepals, spatulate, sparsely pubescent at base, obtuse. Stamens 5 (rarely up to 10), free, filaments 1.5-2 mm long, hairy at the base. Carpels 2, syncarpous; ovary ovoid, 2-loculed, hairy; stigma 2-fid. Fruit a capsule, oblong, tomentose. Seeds 4, smooth, brown, somewhat trigonous. *Fl. & Fr.*: 11-3. *Cultivated fields and fallow lands where it grows as a weed.*

**Bandarban:** Chimbuk hills, 26 xi 1983, *Khan et al.* K. 6480 (DACB).

**Chattogram:** Bariadhala, 17 xi 1986, *Huq & Mia* H. 8001 (DACB), BFRI Campus, 17 v 2006, *Bushra et al.* B. 49 (DACB). **Patuakhali:** Kolapara thana, Kuakata, 4 i 1980, *Khan, Huq, Rahman & Mia* K. 5915 (DACB).

India, Pakistan, Sri Lanka, Taiwan, Cape Verde Islands and Africa.

**Triumfetta pilosa** Roth, Nov. Pl. Sp.: 223 (1821). Masters in Hook. f., Fl. Brit. India 1: 394-395 (1874-reprint 1961); Trimen, Handb. Fl. Ceylon 1: 179 (1893); Prain, Beng Pl. 1: 285 (1903-reprint 2004); Duthie, Fl. Gangetic Plain 1: 118 (1903); Heinig, List Chittagong: 8 (1925); Kanjilal *et al.*, Fl. Assam 1: 168 (1934); Cooke, Fl. Pres. Bombay 1: 156 (1958); Deb. in Bull. Bot. Surv. India 3: 286 (1961); Gafoor, Fl. Pakistan 75: 17 (1974); Matthew, Fl. Tamilnadu carnatic 2: t. 87 (1982) & 3: 176 (1983); Daniel & Chandrabose, Fl. India 3: 519-520 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 398-399 (2009); *T. oblongata* Link, Enum. Hort. Berol. Alt. 2: 5 (1822); *T. guazumaefolia* Bojer, Rapp. Annual Trav. Soc. Hist. Nat. Ile Maurice 12: 18 (1842) & in Ann. Sci. Nat. Bot. 2 (20): 101 (1843). **Fig. 25.**

A perennial herb or undershrub, erect, Stem hispid, young parts rusty tomentose. Leaves 5.0-13. 5 × 1.5-7.5 cm, ovate-oblong to elliptic-lanceolate, base cordate or rounded, apex acute or acuminate, margin coarsely serrate, stellate-hairy, 3-5 nerved;

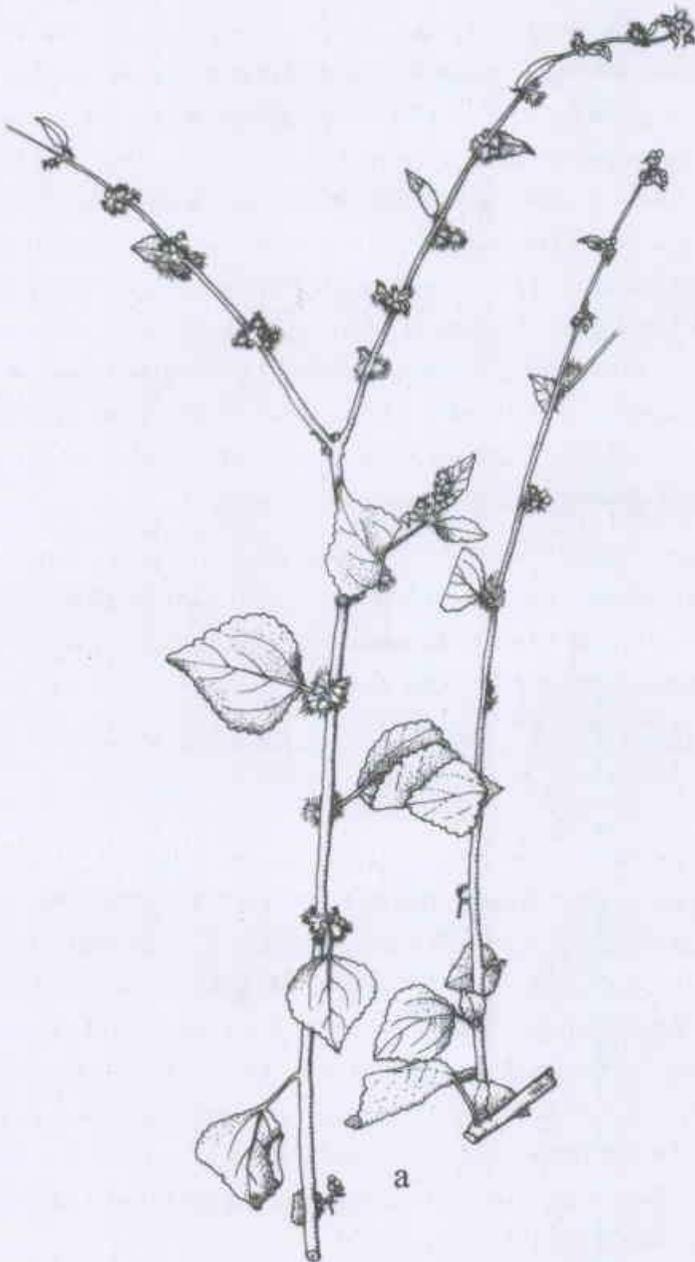


Figure 24. *Triumfetta pentandra* A. Rich., a) habit sketch.

petioles 5 cm long, densely and softly hirsute; stipules subulate, 5.5-8 mm long, linear-lanceolate, pilose. Flowers in many flowered, axillary or leaf-opposed, shortly pedunculate cymes, ca 1 cm across; pedicels 2-3 mm long, hairy. Sepals 5, 9-10 mm long, lorate, apiculate, hairy. Petals 7-8 mm long, narrowly oblanceolate, obtuse, dentate at apex, ciliate at base. Stamens 10, the filaments 10, filaments 8 mm long, glabrous, anthers oblong-elliptic. Ovary sub globose, 1 mm in diam., densely spinulose, 4-loculed; style subulate; stigma 4-lobed. Capsule 6.0-10 mm across, subglobose, tomentose; spines 6-8 mm long, uncinat with patent hairs around except the extreme apical region. Seeds 2.5 mm long, dark brown to black, shiny. *Fl. & Fr.*: 1-12. *Roadside where it grows as a weed.*  $2n=64$  (Kumar and Subramaniam, 1986).

**Bandarban:** Lama Upazilla, Shabilchori, 19 xii 1990, *Mia, Rahman & Mahfuz M.* 2646 (DACB); Chimbuk hills. 26 xi 1983, *Khan et al.*, K. 6482 (DACB), *Ruma*, 5 xii 2007, *Bushra et al.* B. 576 (DACB). **Chattogram:** Harbang on Eastern side of the canal, 19 xi 1979, *Huq, Rahman & Mia* H. 4475 (DACB); Rangamati, 8 i 1869, *C.B. Clarke* (CAL); 7 iii 1976, Barkul (CAL); Chandranath Hills, 23 x 1985, *Khan & Mia* K. 7259 (DACB). **Chittagong Hill Tracts:** Ruma bazaar, 17 i 1965, *M.S. Khan* 911 (DUSH); locality unknown, 25 i 1965, *M.S. Khan* 1164 (DUSH); Kendachori, 12 ii 1968, *Alo Rani* 74 (DUSH). **Rangamati:** Rampahar, Kaptai, 15 xii 2004, *Sarder Nasir Uddin* N. 2544 (DACB).

India, Sri Lanka, Nepal, Bhutan, China, Malay Peninsula and Tropical Africa.

**Triumfetta rhomboidea** Jacq., Enum. Syst. Pl.: 22 (1760); Masters in Hook. f., Fl. Brit. India. 1: 395 (1874-reprint 1961); Prain, Beng. Pl. 1: 285 (1903-reprint 2004); Heinig, Enum. 131 (1907); Gamble, Fl. Pres. Madras: 120 (1915); Haines, Bot. Bihar & Orrisa: 85 (1925); Heinig, List Chittagong: 8 (1925); Datta & Mitra, Bull. Bot. Soc. Beng. 7 (1&2): 21 (1953); Ghafoor, Fl. Pakistan 75: 17 (1974); Daniel & Chandrabose, Fl. India 3: 520-521 (1993); Khan in Ahmed *et al.*, Encycl. Fl. Fauna Bangladesh 10: 399-400 (2009); Barbhuiya and Gogoi, Bangladesh J. Plant Taxon. 17(12): 146 (2010); Santapau, Bull. Bot. Surv. India 3: 21 (1962); Bakshi, Fl. Murshidabad Dist.: 74 (1984); Kanjilal *et al.*, Fl. Assam 1: 168 (1934); *T. bartramia* L., Syst. Nat. ed. 10 (2): 1044 (1759), nom. illeg.; Sinclair, Bull. Bot. Soc. Beng. 9 (2): 88 (1956); Phengklai, Fl. Thailand 6 (1): 49-52 (1993); *Bartramia indica* L., Sp. Pl.: 378 (1753), non *Triumfetta indica* Lam. (1792);

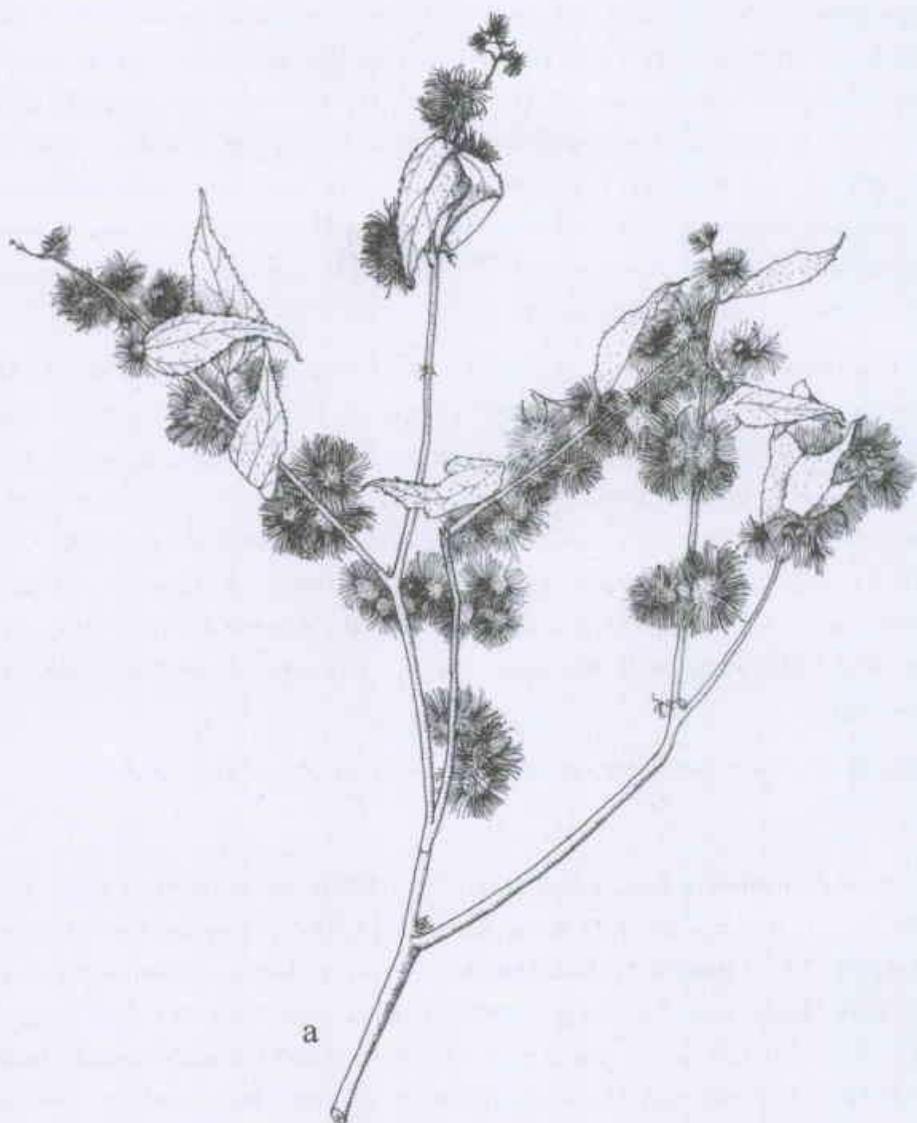


Figure 25. *Triumfetta pilosa* Roth, a) habit sketch.

*T. angulata* Lam., *Encycl.* 3: 421 (1792); Wight & Arn., *Prodr.*: 74 (1834); *T. trilocularis* Roxb., *Fl. Ind.* 2: 462 (1832); *T. tungarensis* Billore, *J. Econ. Tax. Bot.* 3: 621 (1982).

**Fig. 26.**

Bengali: *Ban Okra*

A herb or undershrub, often woody at the base, up to 2 m tall, pubescent. Leaves 3.0-9.5 × 2.5-8.0 cm variable, generally rhomboid-ovate or suborbicular, sometimes obovate, acute or obtuse, coarsely dentate, glabrous, base round or cuneate, 3-7 nerved; petioles up to 5.0 cm long, pubescent; stipules 3-4 mm long, subulate, pubescent. Flowers in terminal or leaf-opposed cymes, shortly pedicellate, 1.0-1.5 mm long, 5-6 mm across; buds oblong, club-shaped. Sepals 5, 5.5-6.0 × 0.8-1.0 mm, oblong, apiculate, hairy. Petals 5, 4.5-5.0 × 1.0-1.2 mm, yellow, equal to or a little shorter than sepals, oblong-obovate, hairy at base. Stamens 8-15, filaments 4.0-5.5 mm long, the anthers c 0.7 mm long. Carpels 2-3; ovary subglobose, 2-3 loculed, with hairs; style subulate; stigma 2-3 lobed. Fruit a capsule, globose or subglobose, indehiscent, spiny; spines 1.5-2.0 mm long, gray-yellow puberulent, tip hooked. *Fl. & Fr.*: 8-1. *Open waste places, and along roadsides.* 2n=32 (Fedorov, 1969).

**Barisal:** Locality unknown, 15 ix 1995, *Md. Ziaul Huq* 14 (DUSH). **Bogra:** Sherpur, 24 i 1981, *A.M. Huq* 4933 (DACB). **Chattogram:** Raozan, 31 i 1971, *Khan & Huq* K. 2426 (DACB); Moheshkhali, 1 i 1975, *A.U. Mallik* (DACB); Fatikchhari, Karnafully Tea Estate area, 21 i 1989, *Huq, Rahman & Mahfuz* H. 9011 (DACB). **Chittagong Hill Tracts:** Naniarchar, 20 xi 1980, *Khan et al.* K. 6083 (DACB), Mainimukh, 28 xii 1981, *Huq, Rahman & Mia* H. 5457 (DACB); Kaptai, Rampahar, 05 xi 1999, *M.A. Rahman* 5959 (HCU). **Cox's Bazar:** Teknaf Upozila, 4 ii 1976, *Mia, Huq and Mahfuz* M. 1976 (DACB); St. Martin's Island, 29 x 1996, *Khan & Mia* K. 9708 (DACB). **Dhaka:** Malibagh, 12 x 1994, *Nilufa* 50 (DUSH); Mirpur Bot Garden, 15 xii 1979, *Huq, Mia & Momtaz* M. 210 (DACB); Savar, 30 viii 1993, *Md. Golam Morshed* 21 (DUSH); Malibagh, 12 x 1994, *Nilufa* 50 (DUSH); Mirpur Bot. Garden, 5 xi 2002, *Rezia & Momtaz* RK. 4026 (DACB); Sakipur, 15 x 1975, *A.M. Huq* 1402 (DACB), Sripur forest, 8 xi 1977, *Huq & Rahman* H. 3563 (DACB); Asuria, 14 x 1975, *A.M. Huq* 1354 (DACB). **Dinajpur:** Ramsagor, 11 x 1980, *Huq et al.* H. 4714 (DACB). **Khagrachari:** Gomoti, 23 iv 2011, *Sarder Nasir Uddin* N. 4582 (DACB). **Kushtia:** Munshigonj, 24 vii 1978, *Khan & Huq* K. 4959 (DACB). **Noakhali:** Momarijpur, 18 xi 1981, *Huq et al.* H. 5270 (DACB). **Rangamati:** Fring Kheong Beat, Karnaphully, 15 xii

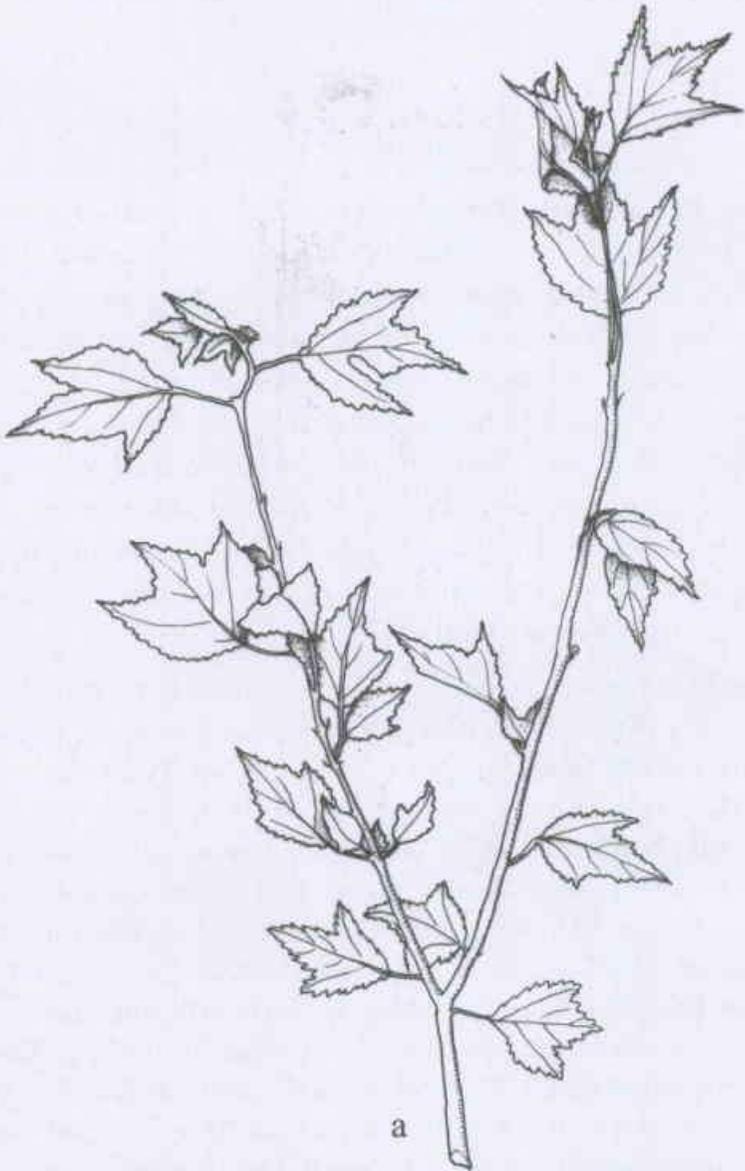


Figure 26. *Triumfetta rhomboidea* Jack., a) habit sketch.

2010, *Sarder Nasir Uddin* N. 4415 (DACB). **Rangpur:** Saidpur Railway Quarter, 15 x 1976, *Huq, Mia & Rahman* H. 2630 (DACB). **Satkhira:** Kaliganj, 12 xii 1989, *Huq et al.* H. 9376 (DACB). **Sherpur:** Nokhla Upazilla, 7 v 2008, *Bushra & Habib* B. 940 (DACB). **Sylhet:** Bhanugach, 14 xi 1932, *A. Das* 10437 (Assam); Salutikar, 22 iv 1985, *Huq & Mia* H. 7081 (DACB); M.C. College, 12 x 1973, *Khan, Huq & Mia* K. 3246 (DACB).

Pantropical.

**Triumfetta tomentosa** Bojer in Rapp. *Annuel Trav. Soc. Hist. Nat. Ile Maurice* 12: 19 (1842) & in *Ann. Sci. Nat. Bot. ser. 2* (20): 103 (1843); Masters in Hook. f., *Fl. Brit India* 1: 394 (1874-reprint 1961); Daniel & Chandrabose, *Fl. India* 3: 522 (1993).

Herbs, suffruticosa, 1-2.5 m high, strongly foetid, hispid. Leaves 2-12 x 1-7 cm, ovate-lanceolate to orbicular, rounded or cordate at base, acuminate at apex, crenate-serrate, stellate-hairy especially beneath, 5-7 nerved; petioles up to 6 cm long, stipules lanceolate. Flowers fasciculate in upper axils forming interrupted racemes, shortly pedicellate. Sepals 4-5 mm long, lorate, apiculate, densely stellate-hairy. Petals orange, 4-6 mm long, oblong, acute. Stamens 5-7. Capsules 5-10 mm across, globose, hispid; spines 4-6 mm long, ciliate all along except the fine tip. *Fl. & Fr.*: 6-12.

This plant was recorded from Bangladesh by Daniel & Chandrabose (1993). During field visits all over Bangladesh within the period of 1970-2016, this plant was not observed by the authors any where in the country. Description of the plant provided here is based on Daniel & Chandrabose (1993).

India, Bhutan, Sri Lanka, Mauritius, Madagascar and Africa.

## Index

- Asar* 35  
*B. elata* Roxb. 6  
*Bagi-pat* 16  
*Ban Okra* 63  
*Ban-pat* 14  
*Banta* 48  
*Bartramia indica* L. 61  
*Berrya ammonilla* Roxb. 3, 4  
***Berrya cordifolia*** (Willd.) Burret 4, 5  
***Berrya*** Roxb. 3  
*Binalita* 19  
*Bola Sudri* 9  
***Brownlowia elata*** Roxb. 6, 8  
*Brownlowia lanceolata* Benth. 9  
***Brownlowia*** Roxb. 6  
***Brownlowia tersa*** (L.) Kosterm. 9, 10  
*Burweed* 55  
*C. fuscus* Roxb. 14  
*C. acutangulus* Lamk. 13, 14  
*C. brachycarpus* Guillemain *et al.* 19  
*C. catharticus* Balanco 21  
*C. decemangularis* Roxb. 21  
*C. olitorius* L. 13  
*C. serratifolia* Cav. 11  
*C. trilocularis* L. 21  
*Chadara tenax* Forskal 44  
*Chavandalai* 4  
*Chuhura* 38  
***Colona*** Cav. 11  
***Colona flagrocarpa*** (C.B. Clarke ex Brandis) Craib 11  
*Colona flagrocarpa* (C.B. Clarke) Craib var. *siamensis* Craib 11  
*Columbia flagrocarpa* C.B. Clarke ex Brandis 11  
***Corchorus aestuans*** L. 13, 15  
***Corchorus capsularis*** L. 16, 18  
***Corchorus fascicularis*** Lamk. 19, 20  
***Corchorus*** L. 13  
***Corchorus olitorius*** L. 21, 22  
*C. tridens* L. 21  
*Deo-pat* 21  
*Deshi-pat* 16  
*Dhaman* 28  
*Dhamani* 28  
*Dhamin* 46  
*Dhamni* 27  
*Espera cordifolia* Willd. 4  
*Fallopia nervosa* Lour. 34  
*G. asiatica* L. var. *vestita* (Wallich ex Brandis) Masters 28  
*G. arborea* Roth 46  
*G. aspera* Roxb. 24  
*G. barberi* J.R. Drumm. ex Dunn 42  
*G. betulaeifolia* A.L. Juss. 44  
*G. bicolor* Roth 37  
*G. corylifolia* A. Rich. 48  
*G. diplocarpa* Thwaites 34  
*G. disperma* auct. non Rottler ex Sprengel 42  
*G. elastica* Royle subsp. *vestita* (Wallich ex Brandis) Haines 28  
*G. elastica* Royle 28  
*G. excelsa* auct. non Vahl 37  
*G. glabra* Blume 42  
*G. hainesiana* Hole 27  
*G. hirsuta* Vahl forma *helicterifolia* (Wallich ex G. Don) Haines 30  
*G. hirsuta* Vahl forma *polygama* sensu Haines 30  
*G. hirsuta* Vahl var. *helicterifolia* (Wallich ex G. Don) Haines 30  
*G. laevigata* auct. non Vahl 42  
*G. leptopetala* Brandis 46

- G. macrophylla* auct. non G. Don 24  
*G. mesopoda* Burret 28  
*G. microscolus* L. 34  
*G. multiflora* auct. non A.L. Juss. 42  
*G. nagensium* Prain 27  
*G. occidentalis* L. 23  
*G. orbiculata* G. Don 48  
*G. polygama* auct. non Roxb. 30  
*G. polygama* Roxb. 37  
*G. populifolia* Vahl 44  
*G. pumilla* Buch.-Ham. ex G. Don 38  
*G. roxburghii* G. Don 32  
*G. scabrophylla* Roxb. 40  
*G. subinaequalis* DC. 25  
*G. tomentosa* auct. non Juss. 32  
*G. vestita* Wallich ex Brandis 28  
*G. viminea* Wallich ex Burret 30  
*Glabraria tersa* L. 9  
**Grewia abutilifolia** Vent. ex Juss. 24, 26  
**Grewia asiatica** L. 25  
**Grewia denticulata** Wallich ex Prain 27, 29  
**Grewia eriocarpa** Juss. 28, 31  
**Grewia helicterifolia** Wallich ex G. Don 30  
**Grewia hirsuta** Vahl 32, 33  
**Grewia** L. 23  
**Grewia lancaefolia** Roxb. 34  
**Grewia nervosa** (Lour.) Panigr. 34, 36  
**Grewia piscatorium** Hance 37  
**Grewia rothii** DC. 37  
**Grewia sapida** Roxb. ex DC. 38, 41  
**Grewia sclerophylla** Roxb. ex G. Don 40, 43  
**Grewia serrulata** DC. 42, 45  
**Grewia tenax** (Forsskal) Fiori 44, 47  
**Grewia tiliifolia** Vahl 46, 49  
**Grewia villosa** Willd. 48, 51  
*Gwangi* 46  
*Hexagonotheca cordata* Turcz. 4  
*Humea elata* Roxb. 7  
*Jamaican cherry* 52  
*Jangli-pat* 19  
*Jute* 16  
*Jute* 14  
*Kango* 46  
*Kedar Sundrii* 9  
*Kawri* 24  
*Kukurbicha* 32  
*Lalita Pat* 21  
*Linden leaf* 46  
*Masjot* 7  
*Mass* 7  
*Microcos paniculata* L. 34  
**Muntingia calabura** L. 50, 52, 53  
**Muntingia** L. 50  
*Nalitapat* 16  
 non *G. polygama* Roxb. 30  
 non *Triumfetta indica* Lam. 61  
*Panisara* 42  
*Phalsa* 27  
*Phalsa* 40  
*Pharsa* 46  
*Pholsa* 27  
*Pichandi* 42  
*Pichandi* 35  
*T. rhomboidea* Jacq. var. *pentandra* (A. Rich) J.L. Ellis 57  
*T. angulata* Lam. 63  
*T. bartramia* L. 61  
*T. cana* Blume 57  
*T. guazumaefolia* Bojer 59  
*T. lappula* L. 54  
*T. neglecta* Wight & Arn. 57  
*T. oblongata* Link 59  
*T. schimperi* Hochst. ex A. Rich. 55  
*T. suffruticosa* Bl. 55

*T. trichoclada* DC. 55

*T. triclada* Link 55

*T. trilocularis* Roxb. 63

*T. tungarensis* Billore 63

*Titapat* 14

*Tosha Pat* 21

*Tossa Jute* 21

*Trincomali wood* 4

*Triopteris polyandra* Balanco 4

**Triumfetta annua** L. 55, 56

**Triumfetta** L. 54

**Triumfetta obliqua** Roth 57, 58

**Triumfetta pentandra** A. Rich. 57, 60

**Triumfetta pilosa** Roth 59, 62

**Triumfetta rhomboidea** Jacq. 61, 64

**Triumfetta tomentosa** Bojer 65

*Wild Jute* 19

## LIST OF FAMILIES PUBLISHED

	Fl. No.		Fl. No.		Fl. No.
Aizoaceae	34	Flagellariaceae	3	Plumbaginaceae	42
Annonaceae	52	Fumariaceae	3	Polemoniaceae	2
Asclepiadaceae	48	Gesneriaceae	65	Pontederiaceae	24
Averrhoaceae	18	Haloragaceae	8	Potamogetonaceae	40
Avicenniaceae	31	Hydrocharitaceae	28	Punicaceae	22
Basellaceae	2	Hydrocotylaceae	44	Rhamnaceae	61
Bixaceae	35	Hydrophyllaceae	1	Rhizophoraceae	7
Buddlejaceae	13	Juncaceae	29	Ruppiaceae	19
Burmanniaceae	38	Lamiaceae	58	Sabiaceae	62
Burseraceae	36	Linaceae	26	Salicaceae	20
Butomaceae	2	Lecythidaceae	60	Sapindaceae	59
Cannabidaceae	14	Loranthaceae	33	Solanaceae	53
Capparaceae	57	Martyniaceae	1	Sonneratiaceae	12
Caricaceae	1	Malvaceae	54	Sphenocleaceae	5
Cassythaceae	43	Menispermaceae	51	Stemonaceae	41
Casuarinaceae	1	Menyanthaceae	49	Stylidiaceae	32
Ceratophyllaceae	10	Molluginaceae	17	Tiliaceae	64
Combretaceae	50	Moringaceae	2	Trapaceae	27
Commelinaceae	4	Nymphaeaceae	9	Tropaeolaceae	3
Convolvulaceae	30	Ochnaceae	3	Turneraceae	3
Costaceae	45	Onagraceae	6	Urticaceae	66
Cuscutaceae	55	Orobanchaceae	21	Vitaceae	63
Dichapetalaceae	23	Oxalidaceae	15	Xyridaceae	46
Dilleniaceae	56	Pedaliaceae	2	Zannichelliaceae	11
Dipterocarpaceae	25	Periplocaceae	47	Zygophyllaceae	16
Elatinaceae	39	Phytolaccaceae	1		

© Bangladesh National Herbarium  
Ministry of Environment and Forests

Illustration: Mahmuda Akhter

Price:           Taka     150.00  
                      US\$     15.00  
                      £         10.00

**Published by: Bangladesh National Herbarium**

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

Phone: +88029000676, E-mail: [bnh\\_mirpur@yahoo.com](mailto:bnh_mirpur@yahoo.com)

**Printed at:** Hasib Computers and Printing, 62/1 Purana Paltan (2<sup>nd</sup> floor), Dhaka-1000, Bangladesh.  
Cell: 01552 388130, 01612388130; +88 2 9016429; E-mail: [hasibprinting@gmail.com](mailto:hasibprinting@gmail.com)