

## THREE NEW RECORDS OF STERCULIACEAE FOR BANGLADESH

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### Abstract

Three species belonging to Sterculiaceae, namely *Guazuma ulmifolia* Lam., *Helicteres viscida* Bl. and *Sterculia urens* Roxb. are recorded here for the first time for Bangladesh. Of these, the genus *Guazuma* is also a new generic record for the country. Updated nomenclature, important synonyms, description, ecology and geographical distribution are provided for each species.

### Introduction

Sterculiaceae is moderately a large family consisting of some 70 genera and 1500 species, mainly of tropical and subtropical regions (Cronquist, 1981). Referring to the Sterculiaceae of Bangladesh Hooker (1874) reported 20 species under 10 genera from the present Bangladesh, whereas, Prain (1903) documented 9 species and 5 genera from the same area. Heinig (1925) recorded 14 species from Chittagong Collectorate and Hill tracts. Sinclair (1956) listed 6 species of this family from Cox's Bazar while Datta and Mitra (1953) registered 11 species from Dhaka and its suburb. Very recently Ahmed *et al.* (2009) added to our knowledge documenting 25 species of Sterculiaceae occurring in Bangladesh.

During the course of a revisionary work on Sterculiaceae of Bangladesh the first author visited the British Museum, London (BM), Royal Botanic Garden, Edinburgh (E) and Royal Botanic Gardens, Kew (K). At these herbaria he came across some herbarium specimens (Clarke 19931, Cowan 1618, Hooker & T. Thomson 302) collected from the area now falls under Bangladesh, namely, *Guazuma ulmifolia* Lam., *Helicteres viscida* Bl. and *Sterculia urens* Roxb., respectively. None of these species appeared in the relevant publications of the regional flora, *viz.* Hooker (1874), Prain (1903), Heinig (1925), Raizada (1941), Datta and Mitra (1953), Sinclair (1956), Khan and Afza (1968), Khan and Banu (1972), Khan and Hassan (1984), Khan *et al.* (1994), Mia and Khan (1995), Rahman and Hassan (1995), Rahman and Uddin (1997), Uddin *et al.* (1998), Uddin and Rahman (1999), Khan and Huq (2001), Rahman *et al.* (2001), Rashid and Mia (2001), Uddin *et al.* (2003), Rahman (2004a, b), Hossain *et al.* (2005), Islam *et al.* (2009), Tutul *et al.* (2009, 2010), Rahman *et al.* (2010) and Uddin and Hassan (2010). Since there has been no record of occurrence of *Guazuma ulmifolia* Lam., *Helicteres viscida* Bl. and *Sterculia urens* Roxb. in any

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floristic works of Bangladesh, these species are reported here for the first time as new records for Bangladesh. Moreover, the genus *Guazuma* Mill. is also reported here as a new generic record for the country.

A detailed description with updated nomenclature, important synonyms, ecology and geographical distribution for each species are given below.

**Guazuma ulmifolia** Lam., *Encycl. Math. Bot.* 3: 52 (1789); Robyns in *Ann. Miss. Bot. Gard.* 51: 10 2, f. 7 (1964); Abedin *et al.* in Nasir & Ali (eds), *Fl. W. Pak.* 99: 10 (1976); Malick in Sharma *et al.*, *Fl. Ind.* 3: 424 (1993); Verdcourt in Dassanayake *et al.*, *Rev. Handb. Fl. Ceyl.* 9: 421 (1995).

*Guazuma tomentosa* Kunth, in H.B.K., *Nov. Gen. Sp.* 5: 32 (1823). Mast. in Hook. f., *Fl. Brit. Ind.* 1: 375 (1874); Prain, *Beng. Pl.* 1: 278 (1903).

*Diuroglossum rufescens* Turcz. in *Bull. Soc. Nat. Mosc.* 25 (2): 157 (1852).

*Theobroma guazuma* L., *Sp. Pl.* : 782 (1753).

A moderate-sized tree, up to 25 m tall. Young twigs covered with rusty-brown or light grey stellate hairs. Leaves simple, tomentose, ovate or oblong-lanceolate, 7-13 x 3-6 cm, acuminate at the apex, obliquely cordate at the base, 3-5 nerved from the base, margin serrate, scabrid or glabrescent on upper surface, pubescent on lower surface; petiole 0.7-1.2 cm long, slender, covered with stellate hairs. Inflorescence axillary and terminal panicles, many-flowered. Flowers yellow; flower buds globose. Calyx campanulate, 5-lobed, lobes reflexed, connate below the middle, stellately hairy. Corolla 5-lobed, concave at the base, exceeding the calyx. Stamens 10, staminodes 5, lanceolate; anthers 2-lobed, lobes divergent, concealed in the hood of the petals. Ovary 5-locular, ovules many in each locule; style more or less connate. Fruit a capsule, woody, oblong, obtuse, tuberculate. Seeds albuminous.

*Flowering and fruiting period:* January to September.

*Ecology:* Secondary forests, growing in alluvial and clay soils.

*Specimen examined:* Naokhali: 30.10.1873, C.B. Clarke 19931 (BM).

*Geographical distribution:* Tropical America from Mexico to the northern part of Argentina and the middle part of Brazil. Also distributed in India, Sri Lanka and Indonesia.

**Helicteres viscida** Bl., *Bijdr.* 1: 79 (1825); Kurz, *Fl. Burm.* 1: 143 (1877); Gagnep. in *Fl. Gen. I.-C.* 1: 489 (1911); Ridl., *Fl. Mal. Pen.* 1: 281 (1922); Craib in *Fl. Siam. Enum.* 1: 175 (1925); Kou-mei, *Fl. Reipubl. Popularis Sin.* 49 (2): 161 (1984).

*Helicteres pulchella* Wall. *ex* Boj. in *Hort. Maurit.*: 35 (1837).

A shrub, 1-3 m tall, with stellate hairs on all parts. Leaves ovate, ovate-oblong to lanceolate, 6-15 x 4-10 cm, subcoriaceous, with soft hairs on lower surface, acute to cuspidate at the apex, cuneate or oblique at the base, margin irregularly dentate, secondary nerves 3-5 pairs; petiole 0.4-1.0 cm long, hairy. Inflorescence axillary, up to 3.5 cm long. Flowers white or yellow;

pedicels articulate. Calyx funnel shaped, 1.4-1.8 cm long, velvety outside, 5-lobed, lobes unequal, acute. Corolla 2.5-3.2 cm long, spatulate, 5-lobed, lobes obtuse or retuse. Stamens 10; staminodes 5; filaments glabrous; anthers 2-celled. Ovary 5-locular, glabrous, each locule with many ovules, ovoid to oblong, surrounded by the ring of stamens; styles slender; stigma divided into 5, pin-like teeth. Fruit a capsule, oblong or cylindrical, 2.5-4.0 cm long, beaked, covered with shaggy hairs. Seeds many, globose to rhomboid.

*Flowering and fruiting period:* July to March.

*Ecology:* Evergreen forest, altitudes 30-340 m.

*Geographical distribution:* China, Vietnam, Laos, Thailand, Myanmar, Malay Peninsula and Indonesia.

*Specimen examined:* Chittagong: Jaldi Range, Boilchori, 2.12.1920. J.M. Cowan 1618 (E).

***Sterculia urens*** Roxb., Pl. Corom. 1: 25, t. 24 (1795); Fl. Ind. ed. Carey 3: 145 (1832); Wight & Arn, Prodr. 1: 63 (1834); Mast. in Hook. f., Fl. Brit. Ind. 1: 355 (1874); Prain, Beng. Pl. 1: 274 (1903); Malick in Shanma *et al.*, Fl. Ind. 3: 470 (1993); Verdcourt in Dassanayake *et al.*, Rev. Handb. Fl. Ceyl. 9: 432 (1995).

*Cavallium urens* Schott & Endl., Melet. : 33 (1832).

A soft-wooded deciduous tree, up to 15 m tall, with white papery outer bark; twigs glabrescent, with distinct raised leaf scars and lenticels. Leaves crowded at the end of branchlets, palmately 3-5 lobed, coraceous, hairy on lower surface, 12-20 x 10-20 cm, acuminate to cuspidate at the apex, deeply cordate at the base, usually 5-nerved from the base; petiole very long, up to 20 cm long; stipules narrowly lanceolate, caducous. Inflorescence terminal, many flowered, 10-18 cm long, glandular pubescent. Flowers small, yellow; pedicels c 4mm long. Calyx 5-lobed, campanulate, 5-lobed, lobes oblong or narrowly triangular, 4-8 x 3-5 mm, hairy on both surface, calyx-tube as long as lobes. Male flowers: stamens 10; anthers sessile; staminodes 10. Female flowers: ovary 5-6, ovoid, hairy; style hairy; stigma 5-6 lobed, recurved. Fruit a follicle, 2-6, oblong, ellipsoid or kidney-shaped, 4-6 cm long and 1-2 cm broad when young, densely rusty pubescent. Seeds 3-6, oblong to ellipsoid, black.

*Flowering and fruiting period:* October to February.

*Ecology:* Mixed deciduous forest.

*Geographical distribution:* Cambodia, India, Sri Lanka, Thailand and Vietnam.

*Specimen examined:* Chittagong : *s. loc.* 31.12.1850, J.D. Hooker & T. Thomson 302 (K).

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