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THREE NEW RECORDS OF ANGIOSPERMS FOR BANGLADESH

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Abstract

A few of the plant specimens of the family Lauraceae Juss., previously collected from Bandarban and Habiganj districts and stored in DACB, were identified as *Lindera assamica* (Meisn.) Kurz and *Litsea sericea* (Wall. ex Nees) Hook.f. Another few specimens of the family Rubiaceae Juss., recently collected from the Lathitila forest of Moulvibazar during the floristic explorations conducted in the northeast region of Bangladesh, were determined to be *Acraranthera tomentosa* R.Br. ex Hook.f. These species are new to the flora of Bangladesh. Taxonomic descriptions of these species have been provided, together with information on their ecology, distribution, representative specimens examined, and illustrations or photographs.

Introduction

Over the past few decades, the small pool of taxonomists in Bangladesh has periodically published a significant number of new records as a result of their continuous efforts to find new plant species in this country, through which they have made significant strides in expanding the botanical knowledge of its flora. More than 281 new records for Bangladesh have been reported since Ahmed *et al.* (2008–2009, 2009) was published in the Encyclopedia of the Flora and Fauna of Bangladesh. The majority of these records include details about the precise distribution of the taxa (Ara and Khan, 2015; Uddin, 2018; Hossain *et al.*, 2019; Hossain *et al.*, 2022; Hossain *et al.*, 2023; Rahman *et al.*, 2023).

To date, a total of 3892 species, or 77.84% of Khan's (1977) estimate of 5000 species for Bangladesh, have been reported in floristic surveys that span this country's political boundary (IUCN Bangladesh, 2024). Given this, if Khan's (1977) estimate is taken into account, the presence of around 1108 (22.16%) species and their status in Bangladesh have not yet been verified by field studies, despite the sporadic efforts of the nation's plant taxonomists for floristic research in this country (e.g., Khan, 1977; Khan and Rahman (eds.), 1989-2002; Ara *et al.*, 2007; Mia, 2009; Ara and Khan, 2015; Basak and Alam, 2015; Rahman *et al.*, 2015; Haque *et al.*, 2018; Rahim, 2019; Shetu *et al.*, 2022; Uddin and Hassan, 2018; Tabassum, 2015; Hossain *et al.*, 2021, 2022; Khanam *et al.*, 2020; Roy and Khan, 2020; Khan *et al.*, 2021; Islam and Khan, 2024).

During a thorough examination of the herbarium specimens of the family Lauraceae housed in the Bangladesh National Herbarium (DACB) and other local herbaria in Bangladesh, a few specimens of this family that had previously been collected from the Bandarban and Habiganj districts did not match the voucher specimens or the taxonomic description or key characters of any species of Lauraceae known or reported so far from Bangladesh. Besides, in the course of the floristic surveys carried out in the northeast region of Bangladesh in 2022–2023, a few other specimens that were collected from the Lathitila forest area of Juri, Moulvibazar, appeared to be

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distinct from all known species of the family Rubiaceae that have been reported from Bangladesh to date.

A careful taxonomic investigation revealed that two DACB specimens from the Lauraceae belonged to two species of the genera *Lindera* Thunb. and *Litsea* Lam., and the recently collected two specimens of Rubiaceae belonged to the genus *Acranthera* Arn. ex Meisn. These species have been confirmed as new to Bangladesh's flora because they have never been reported in any previous publications on this flora including the families Lauraceae and Rubiaceae that span the country's geographical boundary (e.g., Roxburgh, 1814; Hooker, 1872-1897; Prain, 1903a,b; Heinig, 1925; Rashid *et al.*, 1999; Ahmed *et al.*, 2008–2009, 2009; Rahman *et al.*, 2015; Tabassum, 2015; Haque *al.*, 2018; Alam and Uddin, 2018; Shetu *et al.*, 2022; Uddin and Hassan, 2018; Rahim, 2019; Hossain *et al.*, 2021, 2022; Khanam and Khan, 2020; Khanam *et al.*, 2020; Roy and Khan, 2020; Khan *et al.*, 2021; Rahman *et al.*, 2023; Islam and Khan, 2024; Rahman and Khan, 2024). All of the specimens of these species are deposited at the Bangladesh National Herbarium (DACB).

Materials and methods

Field surveys were conducted in the deciduous, semi-evergreen, and evergreen forests and scrub jungles of northeastern hilly regions of Bangladesh belonging to the administrative boundaries of the Habiganj, Moulvibazar, and Sylhet districts between December 2022 and May 2023. The freshly collected plant specimens were processed, pressed, dried, and preserved at DACB in accordance with conventional herbarium protocols (Hyland, 1972; Jain and Raw, 1977).

The morphological characteristics of the specimens were examined by consulting pertinent descriptions and key characters available in the taxonomic literature (e.g., Geesink *et al.*, 1981; Prain, 1903; Mia, 2009; Li *et al.*, 2008; Ngernsaengsaruay *et al.*, 2011); the voucher specimens housed at DACB and BFRIH and herbaria of other institutions; and clear images available on the websites of a few international herbaria (e.g., K, P). Verification of all nomenclatural information was completed by consulting current taxonomic publications (Li *et al.*, 2008) and the nomenclatural databases of GBIF Secretariat (2023), and POWO (2025).

Results and Discussion

The taxonomic identification of the concerned Lauraceae specimens has been confirmed to be *Lindera assamica* Kurz and *Litsea sericea* (Wall. ex Nees) Hook. f., and the Rubiaceae specimens have been verified to be *Acranthera tomentosa* R. Br. ex Hook. f. The following taxonomic descriptions of these three species have been produced based on the specimens and the field notes.

1. **Lindera assamica** (Meisn.) Kurz, Prelim. Rep. For. Veg. Pegu, App. A. p. 103 (1875); Forest Fl. Burma 2: 308 (1877); Hook.f., FL. Brit. India 5: 182 (1886); A. Das in Kanjilal *et al.*, Fl. Assam 4: 95 (1940): C. K. Allen in J. Arnold Arbor. 22(1): 1. *Aperula assamica* Meisn. in DC., Prodr. 15(1):240 (1864). (**Fig. 1**)

Trees, 6-8 m high; branchlets brown to black, terete, 2-5-5 mm thick, rusty tomentellous, finally glabrous Leaves oblong-elliptic to elliptic-lanceolate or oblong-lanceolate, 7-19×2-6 cm, acute or sometimes subacute or cuneate at base, apiculate or caudate or acuminate at apex, chartaceous to coriaceous, glabrous or puberulous on midrib above, rusty or brown tomentellous or coarsely publrulous or pilose on major nerves beneath, dark brown, reddish brown or black-brown above when dry, brown or coppery and often glaucous beneath, penninerved; midrib flat or slightly incised above, raised beneath; lateral nerves 5-12 pair per side, faint above, raised

beneath; tertiary nerves obscure above, usually raised beneath, scalariform, reticulations obscure to faint above, faint beneath, lax; petioles 0.4-1.7 cm long, channelled above, scattered brown or tawny puberulous to glabrous.Inflorescence of umbels. Male umbels coarsely tawny glabrous, singly or 2-4-togeher; subsessile or peduncles very short; pedicels 2-5×0.5-1 mm, ochraceous tomentellous, tepals 6, obovate to spathulate-oblanceolate, 2.5-3×0.8-1.5 mm, scattered ochraceous pilose to glabrous outside; glands on the inner filament bilobed, ca 0.3×0.5 mm; anthers oblong, ca l mm long. Female umbels usually solitary or 3-4 together; peduncles 10-12 mm long, glabrous; involucral bracts 4, suborbicular, decussate, 2×3 mm, outer side hairy, hair white, multicellular, velutionous; flower pedicels ca 2-3 mm long at bud stage, sparsely hairy, hair multicellular; tepal 6, glabrous; pistil ca 5 mm long; ovary subglobose, ca 2.5×1 mm; style cylindrical, ca 1 mm long; stigma capitate or disciform, 2×2 mm . Fruit not seen.

Fig. 1. Lindera assamica (Meisn.) Kurz, a) A branch with inflorescence, b) A female inflorescence at bud stage, c) A pistil

Flowering period: September-May.

Ecology: In hill forest at medium altitude.

Representative Specimen Examined: **Habiganj**: Rema beat, Rema-Kalenga Wildlife Sanctuary, 4 iv 1997, *Khan, Islam and Uddin* K. 9833 (DACB 28183).

Distribution: Native to Assam, Bangladesh, China including Chinese Taipei, East Himalaya, Myanmar, Nepal and Vietnam (GBIF Secretariat 2023; POWO 2025).

Notes: Morphologically, *Lindera assamica* seems similar to *Lindera latifolia* Hook.f., which differs from *L. assamica* by its shorter fruiting pedicel.

2. **Litsea sericea** (Wall. ex Nees) Hook.f., Fl. Brit. India. 5: 156 (1886). *Tetranthera sericea* Wallich *ex* Nees in Wallich, Pl. Asiat. Rar. 2: 67. 1831. (**Fig. 2**)

Deciduous shrubs or small trees to 12 m. Young branchlets covered with dense ferruginous or yellow-white sericeous long hairs. Leaves alternate to more or less clustered; elliptic to oblong-lanceolate, 4-13×1-4 cm, base cuneate, apex acute or slightly acuminate, secondary veins 4-12 pairs, tertiary venation scalariform or reticulate, more or less villous below, sometimes villous on veins above, often glabrescent; occasionally somewhat glaucous below, petioles 0.7-1.8 cm long. Male inflorescence not seen. Female inflorescence 6-8 flowered umbels. Infructescences with 2-4

Fig. 2. *Litsea sericea* (Wall. ex Nees) Hook.f., a) A habit branch with infructescence, b) An immature infructescence.

fruits; peduncles 5-8 mm; pedicels 10-22 mm×0.6-1.5 mm, evenly thickened or slightly thicker beneath fruit. Cupules 2-3 mm across. Fruits globose or ellipsoid, 5-7 mm, seated on 6 lobed perianth tube, apiculate at apex. *Flowering and fruiting period:* April-October.*Ecology*: Foot of the hill at medium altitude. immature infructescence

*Representative Specimens Examined***: Bandarban**: Chimbuk hills, 26 xi 1983, *Khan, Huq, Rahman and Mia* K. 6466 (DACB 7587); **Habganj**: Shaistaganj, 10 x 1973, *M.S. Khan and A.M. Huq.* K. 3162 (DACB 7595).

Distribution: Native to Assam, China South-Central including Tibet, East Himalaya, Myanmar, and Nepal and introduced to Bangladesh (POWO 2025).

Notes: *Litsea sericea* seems morphologically similar to *Litsea kingii* Hook.f., but its terminal bud is perulate which is necked in *L. kingii*.

3. **Acranthera tomentosa** R.Br. ex Hook.f., Fl. Brit. India, 3: 92 (1880). (**Fig. 3**)

Perennial shrubby herbs, 25-40 cm tall. Stem terete, very stout, tomentose. Leaves opposite-decuussate, petioles 3-4 cm long, lamina elliptic to oblanceolate, 12-21×5-8.5 cm, thinly papery, adaxially blackish at drying, sparsely hirsute to hispid, densely strigillose along midrib, abaxially brownish black at maturity, sparsely puberulous in between the lateral veins and densely along lateral veins, densely strigillose along midrib, base cuneate or sometimes slightly unequal, apex attenuate or acute, margins ciliolate, cilia white; lateral veins 11–14 on each side of midrib; stipules persistent, broadly triangular, acute, densely strigillose. Inflorescence sub-terminal, cymes, bracteate, borne on the main stem, one flowered or few flowered fascicles, pendulous.

Fig. 3. *Acranthera tomentosa* R.Br. ex Hook. f., Habit with immature infructescence and persistent calyx.

sub-sessile, bisexual; calyx with ovary portion tubular, prolonged, 5 lobed, persistent in the fruit, lobes 20-24×5 mm, linear-lanceolate, margin ciliate; corolla bluish, villus, tube funnel shaped. *Flowering period*: April-June. *Ecology*: On the slope of the hill. *Representative Specimens Examined***: Moulvibazar**: Lathitila, Juri, 21 v 2023, *M.S. Rahman and S.A. Khan 4898* (DACB)

Distribution: Native to Assam, Bangladesh, and East Himalaya (POWO 2025).

Notes: *Acranthera tomentosa* seems morphologically similar to *A. sinensis*, from which it differs by its shorter (3-4 cm long) petioles, densely tomentose to villose leaf blades and stipules, apically non-cuspidate stipules, longer calyx and bluish corolla in contrast to the longer (up to 7 cm) petioles, glabrescent leaf blades and stipules, cuspidate stipules, and purple corolla of *A. sinensis*.

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