

Three new records for the flora of West Bengal, India

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Abstract

Three species viz., *Ficus heteropleura* Blume (Moraceae); *Sauropus trinervis* Müeller Argoviensis (Euphorbiaceae) and *Trachelospermum assamense* Woodson (Apocynaceae) are reported here as new records for the flora of West Bengal. They are described and illustrated.

Key words: New records; Buxa National Park; West Bengal.

INTRODUCTION

Buxa National Park is situated in Jalpaiguri district of West Bengal. The Park, comprising an area of *c.* 117 sq km, falls under the Buxa Tiger Reserve. The area of the Park is mostly plains with the exception of Tashigaon hills in Jainty Range. The Park comprises four forest ranges viz., East Damanpur, Gadadhar, Jainty and West Rajabhatkhawa. During the exploration of Buxa National Park from 2009 to 2012, one of us (GK) collected some interesting plant specimens. After scrutiny of relevant literature (Prain 1903; Culshaw 1950; Mukerjee 1965; Matthew 1966; Ghosh & Ghosh 1978; Bennet 1979; Sikdar 1981, 1982; Sikdar & Rao 1984; Banerjee 1998; Singh & *al.*, 2007) and comparison with the specimens housed at CAL, it was found that they are of *Ficus heteropleura* Blume (Moraceae), *Sauropus trinervis* Müeller Argoviensis (Euphorbiaceae) and *Trachelospermum assamense* Woodson (Apocynaceae) which have not been reported hitherto from West Bengal.

ENUMERATION

Ficus heteropleura Blume, Bijdr. Fl. Ned. Ind. 9: 466. 1825; Deb, Fl. Tripura 1: 214. 1981; Chauhan in Hajra, Contrib. Fl. Namdapha 286. 1996; Chowdhery & *al.*, Mat. Fl. Arunachal Pradesh 2: 397. 2008. *F. radicans* Roxburgh, Fl. Ind. 3: 536. 1832, *non* Desfontaines (1829). *F. acuminata* Wallich *ex* Kunth & Bouche, Ind. Sem. Hort. Berol. 21. 1846, *non* Roxburgh (1832). *F. urophylla* Wallich *ex* Miquel, in Hooker, London J. Bot. 7: 429. 1848; King, Ann. Roy. Bot. Gard. Calcutta 1: 11, t. 9. 1887 & in Hooker *f.*, Fl. Brit. India 5: 498. 1888; Kanjilal & *al.*, Fl. Assam 4: 239. 1940. [Moraceae]. **Plate 1: A & A1**

Scandent shrubs, often epiphytic; young branchlets with scurfy hairs, scabrid. Leaves alternate, simple; lamina elliptic to obovate, 9.3–12.5 × 3.8–5 cm, entire or undulate, caudate, cuneate at base, coriaceous, green, both surfaces glabrous, except mid-vein; mid-vein impressed above, raised beneath, puberulous; lateral veins 5–6 pairs, glabrous, prominent beneath; petioles 6–13 mm long, decurrent, pubescent when young; stipules subulate, small. Figs axillary, paired or solitary, globose, 9–10 mm across, pinkish, orange or yellow at maturity, finely scabrid with short thick hairs, apical pore navel-like, convex; peduncles 3–5 mm long, hairy; peduncular bracts 2–3, mostly near the base. Male flowers: near apical pore, subsessile; perianth lobes 4, linear; stamen 1; filament short; anther c. 0.75 mm long; ovary rudimentary. Gall flowers: shortly pedicellate; perianth 3-lobed; ovary ± globose, c. 0.5 mm across; style lateral, c. 0.5 mm long, curved. Female flowers: perianth deeply 3-lobed; style lateral, slightly longer than gall flower, persistent; stigma funnel-shaped. Achenes obliquely ovoid, c. 1 mm long, coarse.

Flowers & Fruits: March – August

Distribution: INDIA: Arunachal Pradesh, Assam, Tripura and now from West Bengal. WORLD: Bangladesh, Bhutan, Cambodia, China, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Vietnam.

Specimen examined: West Bengal, Buxa National Park, Gadadhar Range, Panbari Compt. 672 m, 30.03.2012, *Gopal Krishna 50659* (CAL).

Additional specimens examined: Arunachal Pradesh, Lushai hills, 30.03.1899, 3000 – 3700 ft (914 – 1127 m), *Gage 14* (CAL); Duphla hills, *Lister 1874* (CAL); Meghalaya, Khasia hills, 08.04.1894, *Gammie 499*; Khasia & Jainty hills, Therrica Ghat, 15.10.1910, without collector's name *34727* (CAL); Assam, Sibsagar, 10.03.1914, *Kanjilal 3588*; Gaboocka Naga Hills, April, 1899, *Prain's collector 917*; Khasia hills, Umsaw, 29.03.1959, *Deka 11028*; Goalpara, Tokara hills, 09.03.1972, *Deka 51096* (CAL); Tripura, Letheri, 1500 ft. (457 m), 29.03.1941, *Biswas 5166*; Mumpui, 31.03.1941, 700 ft. (203 m), *Biswas 5048* (CAL).

Notes: King (1888) added the distribution of this species to Assam and Meghalaya (Khasia mountain). Kanjilal & al. (1940) as *F. urophylla* Wallich ex Miquel and Deb (1981) as *F. hereopleura* Blume recorded this taxon from Assam and Tripura respectively. Later Chowdhery & al. (2008) reported it from Arunachal Pradesh as *F. hereopleura* Blume. Its occurrence from West Bengal is now beyond North East India.

This species appears much like *Ficus hederacea* Roxburgh but it differs in its habit, leaf apex and fruit indumentum.

Key to closely allied species:

- 1a. Climbing shrubs; leaves acute to acuminate at apex; figs sub-globose,
minutely roughened *F. hederacea*
- 1b. Trees; leaves caudate at apex; figs globose, scabrid *F. heteropleura*

Sauropus trinervis Müller-Argoviensis in Linnaea 32: 72. 1863 & in DC., Prodr. 15(2): 242. 1866, '*trinervius*'; Hooker f. in Hooker f., Fl. Brit. India 5: 334. 1887, p.p., (excl. Sikkim specimens); Kanjilal & al., Fl. Assam 4: 173. 1940; Chakrabarty & Gangopadhyay in Balakrishnan & al. (eds.), Fl. India 23: 499.2012. [**Euphorbiaceae**]. **Plate 1: B & B1**

Shrubs, 2–3 m high. Stems angled, puberulent. Leaves simple, alternate; lamina broadly ovate to ovate-lanceolate, 5.4–10 × 2.4–3 cm, entire, narrowly acute, cuneate-rounded

at base, sub-coriaceous, both surfaces glabrous; mid-vein raised both sides; 3-nerved at base, projected above; lateral nerves 3 – 4 pairs above; petioles short, c. 3 mm long, puberulent; bracts lanceolate, c. 5 × 1 mm. Inflorescence axillary. Male flowers c. 1.5 mm across; pedicels filiform, c. 3 mm long, glabrous. Calyx stellately 6-lobed, arranged in 2 whorls; lobes ovate-triangular, c. 4 × 2 mm, reflexed. Corolla absent. Disc segments 6, biseriate. Stamens 3; filaments connate into a cylinder. Female flower solitary, axillary; pedicels c. 7 mm long, glabrous. Calyx 4 – 6 mm across, 6-lobed, biseriate, usually unequal; lobes obovate, outer longer. Ovary oblong-ovoid, c. 1 mm long, truncate; style short. Capsules globose, c. 2.5 cm across, 6-loculed, cocci with a large adaxial hollow.

Flowers: April– September; **Fruits:** August – November

Distribution: INDIA: Assam, Meghalaya, Arunachal Pradesh and now from West Bengal. WORLD: Bangladesh, China and Myanmar.

Specimen examined: Buxa National Park, Jaintia range, Compt. Jainty 7, 05.04. 2012, *Gopal Krishna 56030* (CAL).

Additional specimens examined: Meghalaya, Khasia hills, Mamloo, 12.05.1886, *Clarke 43794* (CAL); Khasia hill, without collector's name, *Acc. No. 401535* (CAL); Khasia and Jaintia hills, *Gallatly 559* (CAL); Arunachal Pradesh, Mismee hills, *Griffith 4826* (CAL).

Note: King (1888) and Kanjilal & al. (1940) (as *S. trinervius*) recorded its distribution from Assam and Meghalaya. Later Chowdhery & al. (2008) reported this species from Arunachal Pradesh. *Sauropus trinervis* is very close to *S. repandus* Müller Argoviensis, but differs in the following.

Key to closely allied species:

- 1a. Male calyx star-shaped, deeply 6-lobed. *S. trinervis*
 1b. Male calyx discoid, unlobed, repand along margins *S. repandus*

Trachelospermum assamense Woodson in Sunyatsenia 3: 80. 1936; Raizada in Indian For. 68: 367. 1942; Watson in Grierson & Long (eds.), Fl. Bhutan 2 (2): 685. 1999; Karthikeyan & al., Fl. Pl. Ind. (Dicot.) 1: 138. 2009; Kumar & Paul, Pleione 4(1): 158 – 159. 2010. [Apocynaceae]. **Plate 1: C & C1**

Climbing shrubs. Stems terete, puberulous. Leaves simple, opposite; lamina elliptic, 2.5 – 7 × 1.3 – 2.9 cm, entire, mucronate, cuneate at base, glabrous; mid-vein impressed above, raised beneath, puberulous beneath; secondary veins 11 – 13 pairs, raised beneath, arched upwards; petioles c. 5 mm long. Cymes corymbose, terminal or lateral; peduncles 2 – 3 cm long. Flower buds 8 – 10 mm long, slender at base, ribbed, swollen above, 1 – 1.2 cm long when open; pedicels c. 4 mm long. Sepals 5, free; lobes narrowly ovate, c. 2.5 × 1 mm, acute, ciliated along margins, more or less coriaceous, mid-vein prominent. Corolla white, salverform, 5-lobed above, tubular below; tube cylindrical, c. 6 mm long, swollen above, slender below; lobes lanceolate, c. 6 mm long, dilated at throat, densely hairy at base. Stamens 5, epipetalous; filaments inserted in the middle of corolla tube, included; anthers sagittate, c. 3 mm long, connivent, enclosing the stigma lobes, anther tips exerted, cells spurred at base. Disc scales 5, free, c. 0.5 × 0.5 mm, thick. Ovaries 2, ovoid, c. 1 × 1 mm; ovules numerous in each carpel; style slender above, bifid at base, c. 3 mm long; stigma 5-lobed. Fruits incurved pair of slender follicles.



PLATE - I: A & A1. *Ficus heteropleura* - A. twig with figs; A1. figs; B & B1. *Sauropus trinervis* - B. flowering twig; B1. female flower; C & C1. *Trachelospermum assamense* - C. flowering twig; C1. flowers.

Flowers: April – May

Distribution: INDIA: Arunachal Pradesh, Assam and now from West Bengal. WORLD: Bhutan.

Specimens examined: Buxa National Park, Rajabhatkhawa range, 23rd mile road, 29.0 3. 2012, *Gopal Krishna 50620* (CAL).

Additional specimens examined: India: Arunachal Pradesh, Kameng Forest Division, Dirang-Dzong hill slope of East political colony, 5950 ft (1800 m), 16.05.1957, *Rao 7527* (CAL).

Notes: Distribution of this species in Arunachal Pradesh has been confirmed by Kumar & Paul (2010). In CAL this species was misidentified as *Trachelospermum fragrans* Hooker f. [= *T. lucidum* (D. Don) K. Schumann]. Later authors confirmed its identity as *Trachelospermum assamense* R.E. Woodson and reported as new distribution record for Arunachal Pradesh. In India, so far this species is known from only Assam, Arunachal Pradesh and now from West Bengal.

T. assamense is closely allied to *T. axillare* Hooker f. and *T. lucidum*, but differs in leaves apices; inflorescences and position of stamens.

Key to these closely allied species:

- 1a. Leaves caudate; inflorescence a sub-umbellate compact cyme; stamens inserted at base of corolla tube *T. axillare*
- 1b. Leaves acuminate; inflorescence a lax trichotomous cyme; stamens inserted at or above middle of corolla tube **2**
- 2a. Corolla tube 8-10mm long narrowed at base for 6-7 mm; stamens inserted above middle of corolla tube *T. lucidum*
- 2b. Corolla tube 5-8mm long, narrowed at base for 3-4 mm; stamens inserted around middle of corolla tube *T. assamense*

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