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Taxonomic review of *Syzygium polypetalum* (Wall.) Merr. & L.M. Perry (Myrtaceae) - a lesser known chasmophytic jambolan species of Assam

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Abstract

Syzygium polypetalum (Wall.) Merr. & L.M. Perry, a lesser-known lithophytic and riparian jambolan species of north-eastern India, Bangladesh and Myanmar is reinvestigated with special reference to its taxonomic history, distributional range, habitat and morphology. An amplified description is presented here with colour photographs, illustrations and a distribution map.

Keywords

Riparian; *Eugenia*; Indo-Burma; taxonomy

Introduction

The genus *Syzygium* Gaertn. is considered as the largest genus in Myrtaceae with about 1200 species distributed globally from Africa to the Pacific Islands through Asia, Malesia and Australia (1). Duthie presented a detailed revision of the genus (*sensu lato*) in the erstwhile British India enumerating 131 species (2). Subsequently, new discoveries and state floras also added to the knowledge of the genus on regional basis (3-16). The present studies revealed the occurrence of 102 species in India with 44 of them being endemic (17). In north-eastern India, 48 species have been recorded so far although many of them are poorly investigated with uncertain distributional status and unknown morphological characters (17-27). One such species is *Syzygium polypetalum* (Wall.) Merr. & L.M. Perry.

During botanical trips to the Dima Hasao and West Karbi Anglong districts of Assam, the authors came across a large shrub growing amidst rocks on the bank of Kopili river. On consultation with the literature (18, 20, 21, 24, 28, 30-33) and herbarium specimens housed at CAL and ASSAM, the species was identified as *S. polypetalum*. Further, it was found that the description of the species presented by different authors remains insufficient and variations exhibited by it is not fully known. Hence, a detailed account of the species is presented below with colour plates for its easy identification.

Taxonomic treatment

Syzygium polypetalum (Wall.) Merr. & L.M. Perry, Brittonia 4: 125. 1941; Haridasan & R. R. Rao, Forest Fl. Meghalaya 400. 1985; K.P. Singh in N.P. Singh *et al*., Fl. Mizoram 1: 592. 2002; Deb, Fl. Tripura 1: 372. 1981. – *Jambosa polypetala* Wall., Rep. Calcutta Bot. Gard. 27. 1840. – *Eugenia polypetala* (Wall.) Wight, Icon. Pl. Ind. Orient. 2(3): 8. 1842; Kurz., Forest Fl. Burma 1: 493. 1877; Duthie in Hook. f., Fl. Brit. India 2: 472. 1878; Kanjilal *et al*., Fl. Assam 2: 267. 1938, *descr. hic amplif*.

=*Eugenia angustifolia* Roxb., Fl. Ind. ed. 1832, 2: 490. 1832, *non* Lam. 1789, *nec* Blume 1824.

Large shrub to medium tree, riparian, rheophyte, chasmophyte, 3–5 m high, girth 65–70 cm; stem hard, stout, brachiate at the base; bark smooth, occasionally flaky, creamish white; branchlets stout, irregular, old branchlets with inflorescences or fruits, greyish white, 0.5–1.5 cm in diam., leafless, terete, dry, flaky, outer surface loose, often marked with scars of fallen leaves and persistent crustose lichens, scars either whorled or spirally arranged; young branchlets with leaves, green, angular at nodes, triangular to hexangular, winged at internodes; nodes 1–4 cm apart. Leaves ternate, at base and apices of young branchlets, whorled at intermediate regions, 7–21 × 0.8–1.7 cm, linear to narrowly lanceolate, acute-attenuate at base, revolute along margins, acute at apex, coriaceous, smooth, often with galls on the adaxial side, holes surrounded by a distinct ring on abaxial side; midrib canaliculate above, prominent, raised beneath, lateral nerves faint above, prominent beneath, 12–15 pairs, 0.6–1.7 cm apart, intramarginal veins distinct beneath, straight to irregular, ca 0.1 cm from the margin, discontinuous at both ends, outer intramarginal veins present; petioles 0.5–1.4 cm long, stout, wrinkled. Inflorescence 1–3(–6–7)- flowered, cymose, appearing like corymb, 4–5 cm long, arising from axils of fallen leaves, shortly peduncled, ca 0.5 cm long; bracts 3, 1 at base of pedicel, 2 at base of peduncle; bracteoles 2, at base of hypanthium, persistent, lanceolate, up to 0.36 cm long. Flowers showy, aromatic, white, 5.5–6 × 6.5–8 cm; pedicels 1.1–1.4 cm long, slender, buds pinkish, ca 2.3 cm long; hypanthium smooth, limb broadly campanulate, base narrow, purplish white, ca 1.3 cm long; epicalyx present, triangular, ca 0.4 cm long; staminal disc white, thick, slightly curved outwards; nectaries marked with brown dots; calyx lobes free, always 4, unequal, triangular to suborbicular, greenish white, translucent along margins, 0.4–0.6 × 0.6–1.1 cm; petals free, always 7, 3 orbicular, 3 elliptic, 1 shortly clawed, pinkish white, 0.8–1 × 0.7–1.2 cm; stamens numerous, white, outermost stamens up to 3.3 cm long; anthers dorsifixed, white, reddish when dry, sickle-shaped, rarely curved spirally; anther sacs parallel; staminodes 1, prominent, arising from staminal disc, petaloid, 0.8–2.5 cm long; filament and anther distinct at early stages, indistinct at maturity, tip slightly falcate; style white, ca 4.5 cm long, straight to arcuate, base slightly broader; placentation axile. Fruits campanulate to cupuliform, always solitary at nodes, 2–2.7 × ca 1.5 cm, style, calyx lobes, epicalyx and disc persistent, purplish green, surface smooth (Fig. 1–3).

Local Names

Assamese: *Korobi Potia Jamu* (Nerium leaf jambolan); Lushai: *Tuipui Sulhia*; Lakher or Mara: *Rabu*.

Habitat

Terrestrial, mainly growing out from the debris present between the giant rock crevices (endolithic lithophytes or chasmophytes) along river banks (riparian). It can also be considered as a rheophyte as it sustains itself during the seasonal monsoon floods. In the present study, a total of 5

Fig. 1. *Syzygium polypetalum* **A**. Habitat, **B**. Main trunk with branches.

Fig. 2. *Syzygium polypetalum* **A**. Habit, **B**. Bark, **C**. Branchlets with fruits, **D**. Leaves, **E**. Inflorescence, **F**. A single flower.

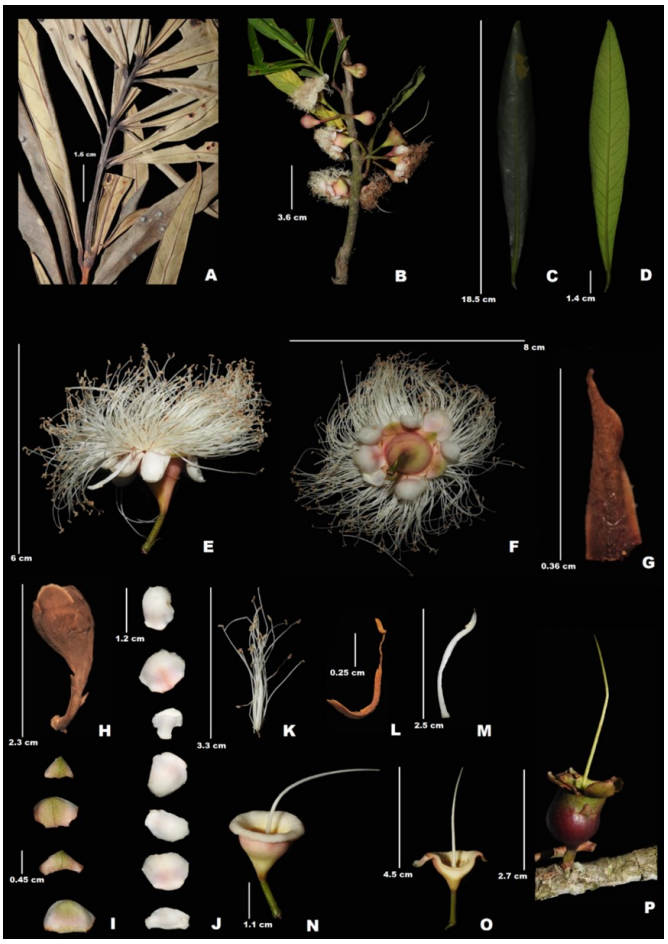

Fig. 3. *Syzygium polypetalum* **A**. Young branchlets depicting hexangular nodes, **B**. Inflorescence, **C**–**D**. Dorsal and ventral sides of a leaf, **E**. A single flower, **F**. Ventral side of a flower representing petals and calyx lobes, **G.** A single bracteole, **H**. A bud, **I**. Calyx lobes, **J.** Petals, **K**. Fertile stamens, **L**–**M**. Different stages of staminodes, **N**. Hypanthium with staminal disc, **O**. L.s. of hypanthium showing style, **P**. A fruit.

–8 individuals were located and studied at Panimur, Dima Hasao Autonomous Council (DHAC), Assam (Fig. 4).

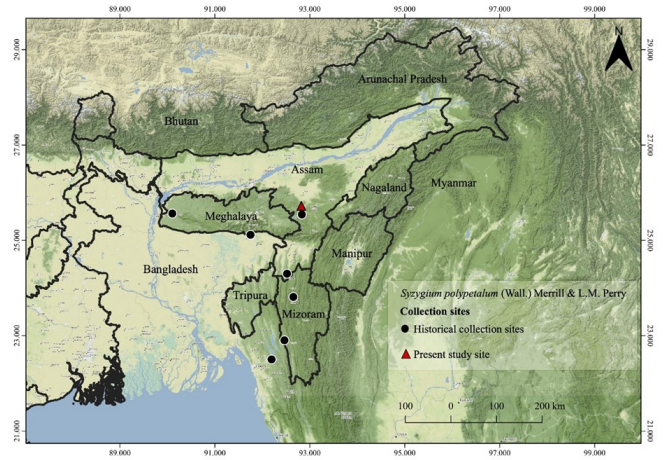

Fig. 4. Distribution map of *Syzygium polypetalum* depicting the historical collection sites and present study site in Bangladesh and north-eastern India (Map tiles by Stamen Design, under CC BY 3.0. Data by OpenStreetMap under ODbL).

Phenology

Flowering was observed from March to April. Fruiting was observed from May to June.

Distribution

India (Meghalaya, Mizoram, Assam and Tripura), Bangladesh and Myanmar.

Specimens examined

BANGLADESH. Sylhet, Panduah, *F. De Silva, Cat. No.* 3616 (K001119835, E00179120, images!). Chittagong, Rangamati, Karnaphuli river bank, 20 Mar. 1899, *Gage s.n.* (CAL); Kasalong, 26 Mar. 1876, *Lister* 84 (CAL); INDIA. Assam, N.C. Hills, Dehingi Bank, 365–487m, 25 Jan. 1915, *U.N. Kanjilal* 6779 (ASSAM); Cachar, Garmura River, 8 Apr. 1940, *R.N. De* 19332 (ASSAM); Dima Hasao Autonomous Council (DHAC), Panimur, 4 Apr. 2021, *D. Dey* DDS06 (GUBH). Mizoram, Lushai Hills, Changsil, 2 Apr. 1890, *Prazer s.n.* (CAL); Demagiri river bank, 11 Mar. 1876, *Lister* 167 (CAL). Meghalaya, Khasia Hills, 1863, *Griffith* 2347 (CAL); Garo Hills, Ganol River, 12 Aug. 1930, *R.N. De* 8421 (ASSAM).

Notes

This interesting plant species is found to be under severe threat from various anthropogenic activities as well as natural calamities. Also, due to a narrow distributional range, an urgent need for its immediate conservation and artificial propagation is anticipated.

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Authors contributions

DD, SK and MP have conducted the field surveys and documentation. DD, MB and BK have studied the literatures and identified the plant. DD and ND have curated the manuscript for correspondence. All authors have read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interests to declare.

Ethical issues: None.

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