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Two new distribution records of *Strobilanthes* Blume (Acanthaceae) for Assam, India

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Abstract

Two species of *Strobilanthes* Blume (Acanthaceae), *S. anisophylla* (Wall. ex Hook.) T. Anderson and *S. sabiniana* (Wall. ex Lindl.) Nees are added as a new distribution records for Assam from Manas Biosphere Reserve. Detailed description, taxonomic notes, geographical distribution map and habitat are provided, accompanied by photographic images to facilitate easy identification of the species.

Keywords

Assam, new record, Raimona, *Strobilanthes*, taxonomy, Ultapani

Introduction

Strobilanthes Blume is the second largest genus of Acanthaceae after *Justicea* L. It comprises of about 450 species, mostly distributed in the south and Southeast Asia and Melanesia (1, 2). It has the significant diversity of pollen morphology among other genera of flowering plants (3–5). In India, the genus is represented by about 148 species mostly distributed in the Western Ghats and Himalayas (6). However, taxonomy of *Strobilanthes* in Assam is still based only on the classical work (7) who reported the occurrence of 50 species from the erstwhile Assam. Present political boundary of Assam contains 29 species of *Strobilanthes* including the presently reported species.

During the floristic surveys conducted in westernmost part of Assam, India, the authors collected a few interesting specimens of *Strobilanthes* from swampy and streamside habitats of Sona Bhandar, Ripu Reserve Forest and from floor of semi evergreen forest of Ultapani, Chirang Reserve Forest. Taxonomic evaluation of the specimens, scrutiny of relevant literature (7–12) and consultation of herbarium specimens deposited at ASSAM and CAL as well as foreign digital herbarium specimens at MICH, NL, GZU, P, E, K, BM, NY (13) revealed that the species collected from the above mentioned localities represent *S. anisophylla* (Wall. ex Hook.) T. Anderson and *S. sabiniana* (Wall. ex Lindl.) Nees. Thus, this is the first report of these species from the state of Assam. A detailed account of the species is presented below with colour plates and a distribution map for Assam, prepared using ArcGIS 10.5 (Fig. 1).

Taxonomy

Strobilanthes anisophylla (Wall. ex Hook.) T. Anderson in Cat. Pl. Calcutta 43. 1865. **–** *Ruellia anisophylla* Wall. ex Hook., Ex ot. Fl. 3: t. 191. 1826.

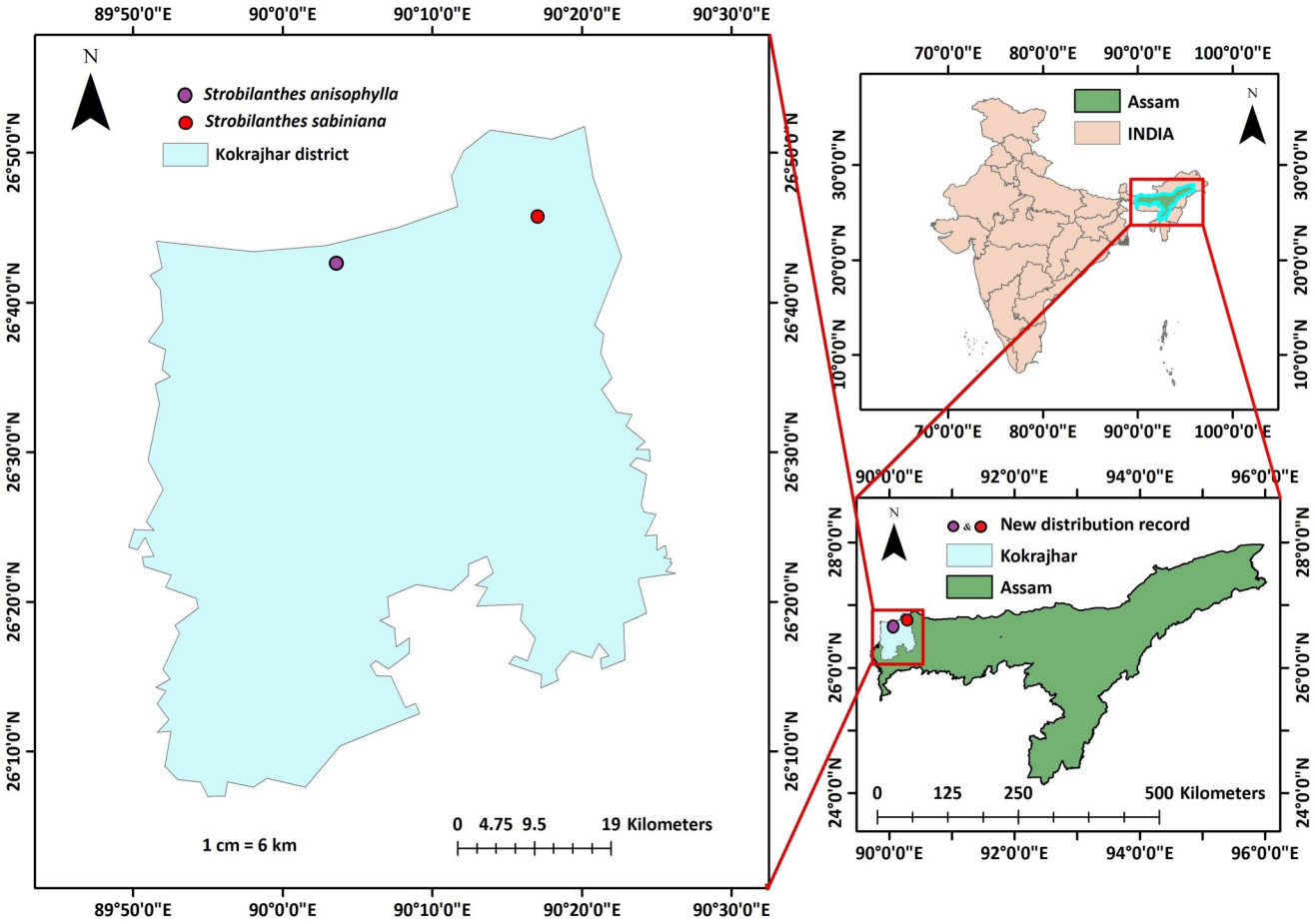

Fig 1. Distribution map for Assam, prepared using ArcGIS 10.5.

Undershrubs, up to 80 cm high, erect, decumbent later; stem linear or zigzag, minutely sulcate, scurfy-puberulent. Leaves: petiolate, opposite; opposite leaf of each pair equal or much smaller or absent; petioles 0.5–1 cm long, glabrous; lamina 1.5–16 × 0.5–2 cm, elliptic-lanceolate, glabrous or sometimes puberulent beneath; nerves distinct, margin serrulate-undulate, apex caudate-acuminate, base attenuate, lateral nerves 3–4 pairs. Flowers: lavender in cymose heads, arising from upper leaf axils; bracts elliptic, apex obtuse, margin ciliated, green, glandular; calyx segments 0.3–0.8 cm long, linear-oblong, glandular, reddish-pink; corolla 2–3 cm long, pale purpule; lobes 5, broadly ovate-rounded, slightly curved with more or less cylindrical base, pubescent outside, glabrous inside except hairs retaining style; stamens 4, didynamous, longer 0.5–1 cm long, shorter *ca* 0.5 cm long; filaments white; anther rounded or oblong, pale yellow, pubescent; style linear, glabrous, white, apex bent; ovary with comose tip (Fig. 2).

Phenology

December–January.

Habitat

Growing in semi evergreen forests in shady places in associated mostly with *Phrynium pubinerve* Blume and *Chloranthus elatior* R. Br.

Distribution

India (Assam, Meghalaya and West Bengal), Bhutan and Bangladesh (Sylhet).

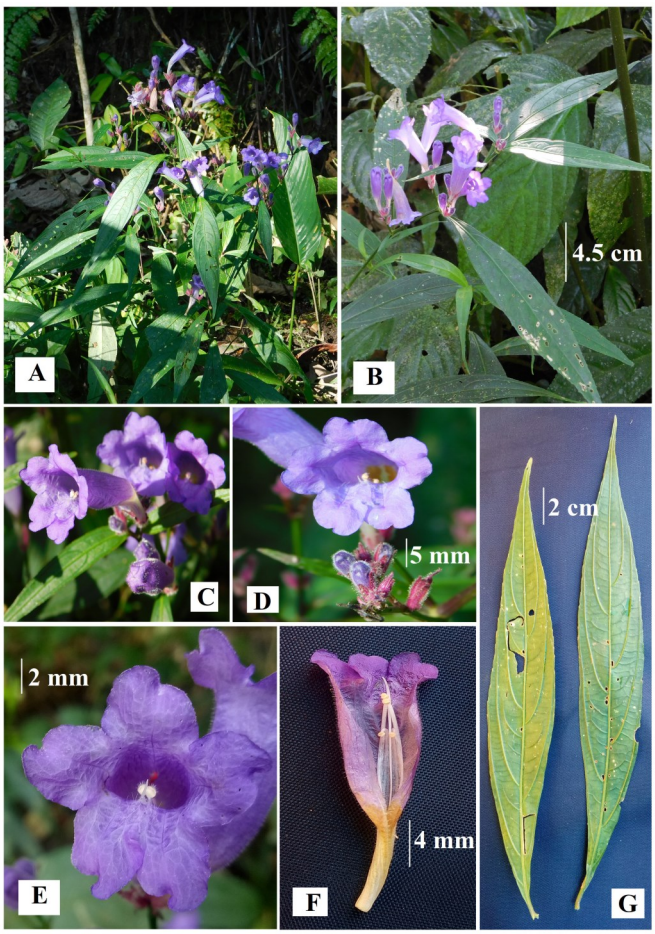

Fig. 3. *Strobilanthes anisophylla*. **A & B**. Habit. **C, D & E**. Flowers. **F**. Flowers showing didynamous stamens and style. **G**. Leaves.

Specimen examined

India, Assam, Kokrajhar district, Ripu Reserve Forest, Sona Bhandar (26°74'27.04" N; 090°15'16.09" E), 21 Dec. 2020, *S. Basumatary, M. Rahman, N. Islam, U.K. Borkataki & T. Chhetri 0259* (BUBH0000402, ASSAM098153).

Notes

Strobilanthes anisophylla is mostly found under cultivation and in some conservatories of European countries. Perusal of available literature indicates that *S. anisophylla* is not common in the wild in India and first introduced in Calcutta Botanic Garden before 1826 (2, 10). It was stated that it is a native of India, Bhutan and possibly originated from Meghalaya as older collections are from Khasi Hills, Meghalaya (10). It was observed that anisophyllus leaves with zigzag stem are found in the wild condition (2). However, a new combination was made as *S. persicifolia* due to wide variation in habit and leaves but later the species was reinstated and mentioned *S. isophylla* as a form of *S. anisophylla* (10). Interestingly, the present material was found in the wild in undisturbed forest habitat with all the variations (both iso- and anisophyllous leaves and simple or zigzag stem).

Strobilanthes sabiniana (Wall. ex Lindl.) Nees in Wall., Pl. Asiat. Rar. 3: 86. 1832. – *Ruellia sabiniana* Wall. ex Lindl., Edward's Bot. Reg. 15: t. 1238. 1829.

Undershrubs, up to 1.5 m high, well branched; stem angular, rarely terete, glabrous. Leaves: opposite of unequal pair; lamina 5–12 × 3–5 cm, elliptic-ovate or elliptic-lanceolate, dark green above, grey or whitish beneath, glabrous, margin subentire or obscurely crenate, base narrowed or sometimes rounded, apex acuminate, lateral nerves oblique, 4–6 pairs; petiole 0.5–1.5 cm long. Flowers in spikes; spike 5–10 cm long, pubescent; bracts obovate or obcordate, 4–6 × 3–5 mm, green, pubescent; bracteoles lanceolate, 3–6 mm long, pubescent; calyx deeply cleft, 4–7 mm long, lobes lanceolate, green; corolla 1.5–2.3 cm across, lobes 5, violet, pubescent outside; stamens didynamous, longer 1–2 cm long, shorter 3–6 mm long; filament white, glabrous; anthers violet; style linear, 2–2.5 cm long, white, apex bent, glabrous. *Capsules* pilose; seeds 4, orbicular (Fig. 3).

Phenology

December–February.

Habitat

Growing in semi evergreen forest floor on dry gravelly soil in well drained or on steep scrubby banks.

Distribution

India (Assam and Meghalaya) and Bhutan.

Specimen examined

India, Assam, Kokrajhar district, Chirang Reserve forest, Ultapani (26°76'26.72" N; 090°28'36.78" E), 6 Feb. 2021, *S. Basumatary & S. Baruah 0306* (BUBH0000449).

Notes

The occurrence of the species in Khasi Hills was reported at an elevation of 1219 m in Meghalaya (7). The present report is a natural extension of the species to Assam.

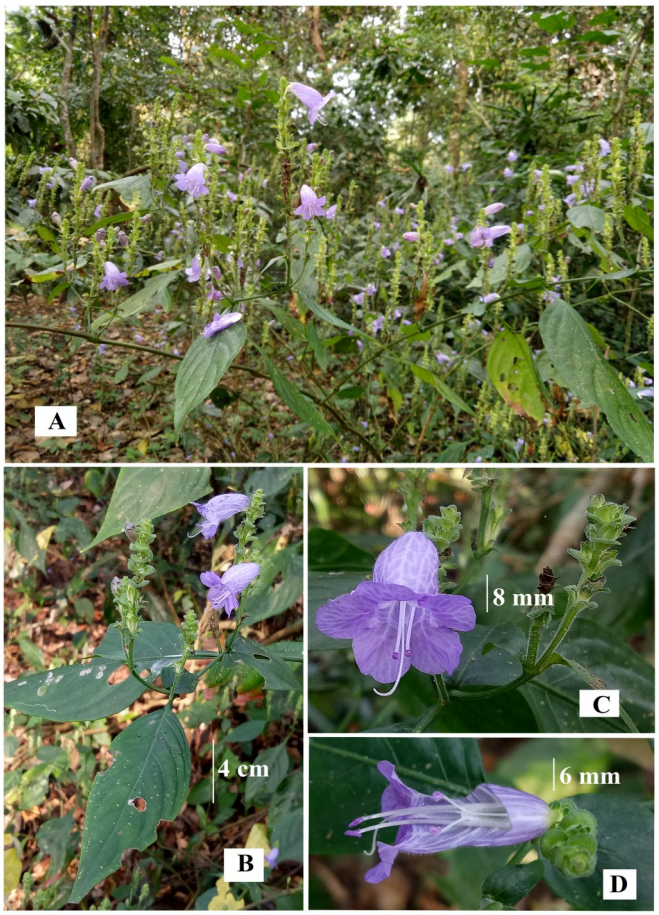

Fig. 2. *Strobilanthes sabiniana*. A & B. Habit. C. Flower. D. Flower showing didynamous stamens and style.

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Authors contributions

SWB, NI, SB, UKB, TC and MR had collected the plant specimens. SWB and SB have identified and prepared the manuscript for correspondence.

Compliance with ethical standards

Conflict of interest: The authors don't have any competing interests.

Ethical issues: None

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