



Strobilanthes grandidentata (Acanthaceae), a new species from Arunachal Pradesh, India

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ABSTRACT: *Strobilanthes grandidentata*, a new species from the Dibang Valley of Arunachal Pradesh, is described and illustrated. A detailed discussion of its morphological similarities and dissimilarities with closely allied taxa is provided. It is accompanied by photographs, as well as notes on distribution, habitat and conservation status. The new species is assigned as 'Data Deficient' (DD) following the IUCN (2024) guidelines.

KEY WORDS: Dibang Valley, Eastern Himalaya, *Goldfussia*, Mishmi Hills, *Strobilanthes pentastemenoides*, *Strobilanthes sumatrana*.

INTRODUCTION

Strobilanthes Blume is recognised as the second most species-rich genus within Acanthaceae after *Justicia* L., encompassing an estimated 465 accepted species globally (POWO, 2025). Its species are chiefly distributed throughout the tropical and subtropical regions of Asia, with its range extending eastward into Melanesia and characteristically occupying monsoon-influenced montane forests. The circumscription of the genus has been contentious historically. Some taxonomists, including Nees (1832, 1847) and Bremekamp (1944), advocated the division of Strobilanthinae sensu Bremekamp (1944) into many smaller genera, whereas others such as Anderson (1867), Clarke (1884), Terao (1983) and Wood and Scotland (2009) favoured a more inclusive generic treatment. Support for Terao's broader concept was later substantiated by molecular phylogenetic analyses, which demonstrated that the segregate genera were phylogenetically nested within *Strobilanthes* (Moylean *et al.*, 2004; Deng *et al.*, 2006; Wood and Scotland, 2009; Hu *et al.*, 2011; Wood, 2014; Deng, 2019). These findings ultimately resulted in the widespread adoption of the broad generic framework that is in use today.

India constitutes a significant centre of diversity for *Strobilanthes*, harbouring approximately 165–170 taxa (Arisdason *et al.*, 2020). Two major hotspots of species richness are recognised: the Western Ghats, with about 61 native species and the combined Himalayan and northeastern regions, collectively supporting about 100 species by our informal reckoning. Species diversity increases from west to east along the Himalayas (Sathisha *et al.*, 2025), with a single species known from Afghanistan, 23 from Nepal, 30 from Bhutan, and at least

85 across the northeastern Indian states of Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram, and Tripura. Arunachal Pradesh alone accounts for 44 species (Borah *et al.*, 2025), several of which have been documented only in recent decades.

During a recent field expedition to Arunachal Pradesh, a distinct population of *Strobilanthes* that did not match any described species from the region or adjoining floras was encountered by the first author. Subsequent morphological examination, comparison with herbarium specimens, and consultation of relevant literature confirmed this collection represented a previously undescribed taxon.

MATERIALS AND METHODS

Field work took place in Arunachal Pradesh. Key macromorphological characters were studied in the field and micromorphological characters were recorded subsequently using a stereomicroscope (Leica S9i) in the laboratory. Herbarium specimens were prepared following standard methods (Jain and Rao, 1977). We also accessed digital specimen images available online through various platforms, including the Chinese Virtual Herbarium (<http://www.cvh.ac.cn/>), JSTOR Global Plants (<https://plants.jstor.org/>), Global Biodiversity Information Facility (<https://www.gbif.org/>), and iNaturalist. The specimens will be deposited in CSIRNEIST (CSIR-NEIST, Jorhat, Assam) and ASSAM (BSI, Shillong, Meghalaya) for future reference.

TAXONOMIC TREATMENT

Strobilanthes grandidentata S.Chowdhury, B.Hajong & P.Bharali, *sp. nov.* **Figs. 1, 2 & S1**

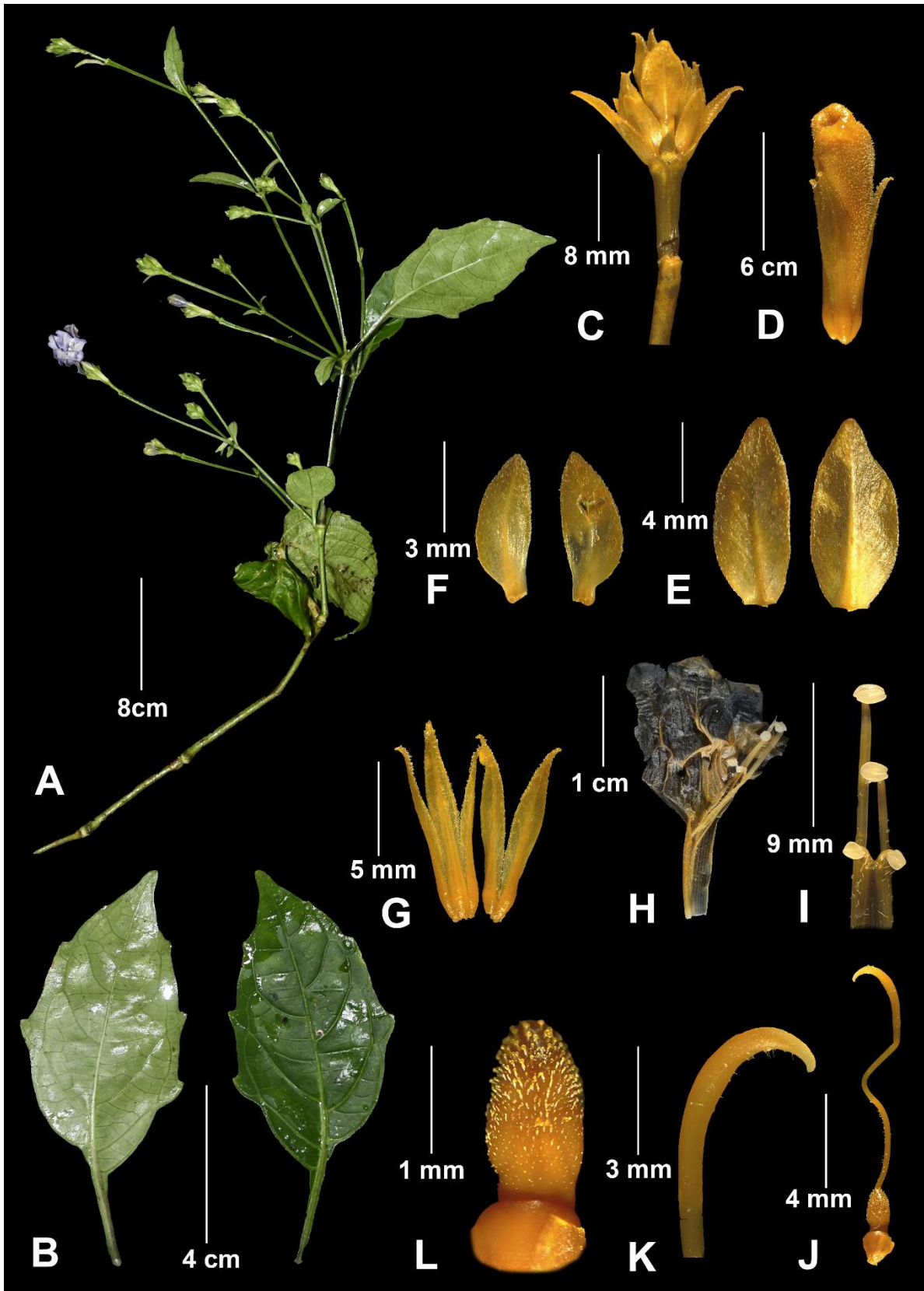


Fig. 1. *Strobilanthes grandidentata* sp. nov. A. Habit, B. Leaf, C. Inflorescence, D. Flower bud, E. Bract, F. Bracteoles, G. Calyx, H. Split-open corolla, I. Androecium, J. Gynoecium, K. Stigma, L. Ovary. Photos by Sambit Chowdhury

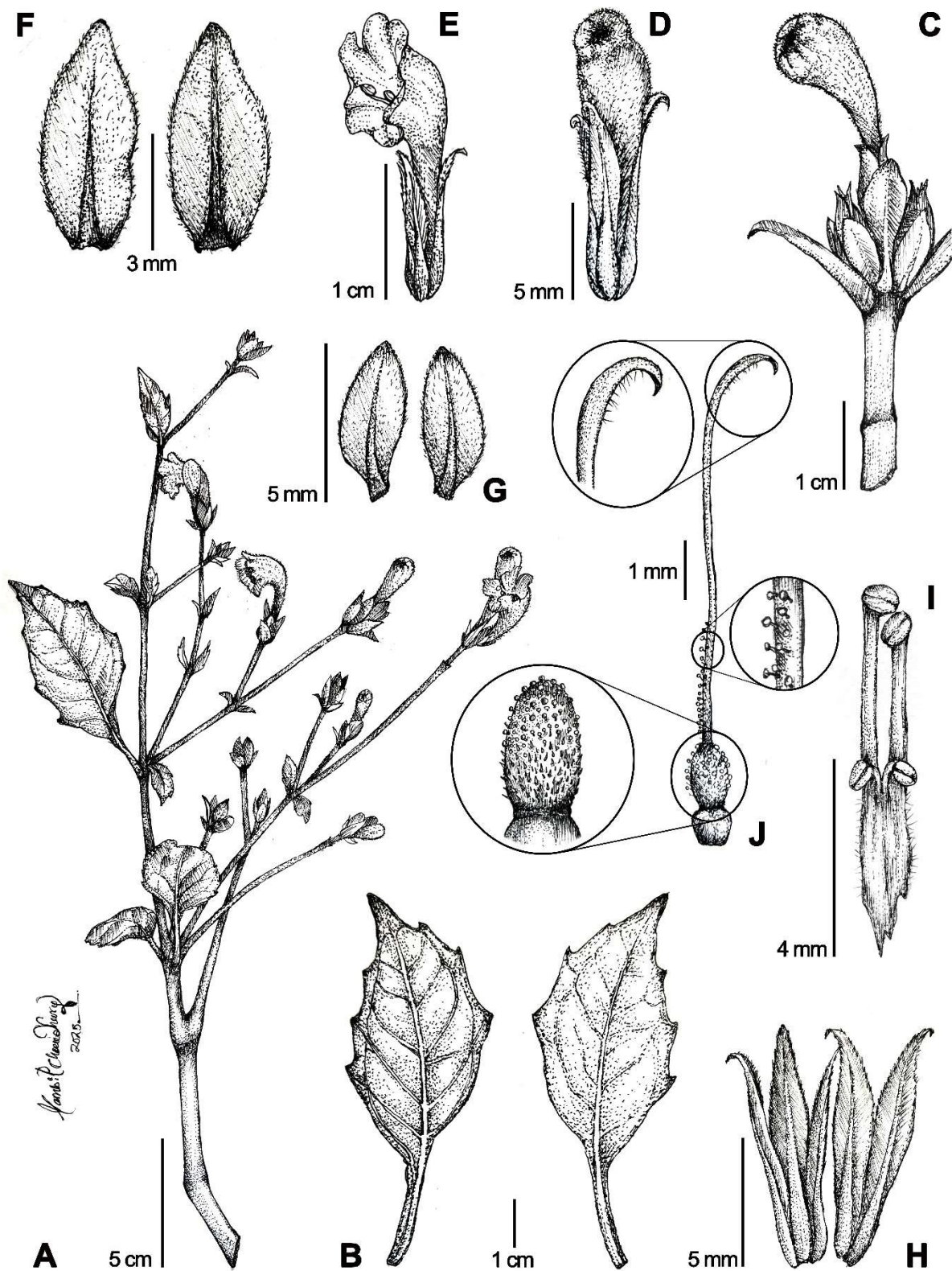


Fig. 2. *Strobilanthes grandidentata* sp. nov. A. Habit, B. Abaxial and adaxial surfaces of leaf, C. Inflorescence, D. Flower bud, E. Flower, F. Bracts, G. Bracteoles, H. Calyx, I. Androecium, J. Gynoecium. Illustrations by Sambit Chowdhury.



Type: INDIA. Arunachal Pradesh: Lower Dibang Valley District, in between Roing and Mayodia, 28°13'13.6"N 95°48'04.0"E, 1182 m a.s.l., 2 November 2025, S. Chowdhury 22 (Holotype: CSIR-NEIST; Isotype: ASSAM).

Diagnosis: A very distinctive new species that has the diagnostic “*Goldfussia*” androecium in which the anthers are suborbicular to ellipsoid with the shorter (inner) pair incurved. The form of its inflorescence suggests an affinity with species with a similar capitellate inflorescence such as *Strobilanthes pentastemonoides* (Nees) T. Anderson but the persistent, green herbaceous bracts and presence of bracteoles (vs. bracts caducous, near colourless, scarious and bracteoles absent) are very different. Morphologically it is perhaps closest to the Sumatran species, *S. sumatrana* Miq., in its corolla size and indumentum, calyx size and indumentum and the shape of its bracts but is readily distinguished by the presence of bracteoles (vs. absent) and persistent bracts (vs. caducous). The new species is also distinctive in its apparently unique shiny leaves with brochidodromous venation, oblique base, large marginal teeth and winged petiole.

Description: Anisophyllous herb reaching up to 0.75 m high. Stems initially decumbent and rooting at the nodes, later ascending, 4-angled, sulcate when young, terete, subglabrous when mature, 3–4 mm wide, green to greenish-brown, nodes swollen. **Leaves** petiolate, unequal, the larger lamina in each pair about four times the smaller, 6–10 × 2–4 cm, elliptic, shortly acuminate to an obtuse apex, base cuneate, oblique, margin dentate with 3–4 large teeth on each side, both surfaces glabrous, shiny and apparently lacking cystoliths; venation brochidodromous with 4–5 principal lateral veins, petioles winged, glabrous, green, 2–2.5 cm long. **Inflorescence** mostly trifurcate branched, terminal and axillary. **Flowers** sessile in small heads at the branch tips; **peduncle** narrowly winged, 2–3 cm long, glabrous; **bracts** narrowly ovate-elliptic, 6–8 × 2–3 mm, slightly asymmetric, sessile, green, persistent, apex obtuse, puberulent with simple hairs, margin entire; **bracteoles** narrowly oblong-ovate, 5–6 × 2–2.5 mm, asymmetric, apex obtuse, narrowed at base, thinly puberulent, margin serrulate. **Calyx** 8–10 mm long, subequally 5-lobed to ca. 1 mm above base; lobes ca. 7 × 2 mm, linear-lanceolate to very narrowly lanceolate-elliptic, basally white, apically green, margin ciliate with multicellular hairs, adaxially glabrous. **Corolla** pale-violet, ca. 3–3.5 cm long, bent 90 degrees, outer surface pubescent with glandular hairs 180–200 μm long, inner surface glabrous except simple hairs on filament curtain; tube basally cylindrical, ca. 2 mm wide then gradually widened to ca. 1 cm at mouth; lobes ovate, spreading ca. 4 × 5 mm. **Stamens** 4, included; filaments glabrous; shorter pair 3.5–4 mm incurved, with subspherical anther thecae 0.8–1 mm diameter; longer filament pair 7–9 mm; anther thecae spherical, c. 1.3 mm in diameter. **Ovary** ovoid, pilose

with glandular hairs; style ca. 2.5 cm, sparsely pubescent with gland-tipped hairs; stigma curved inwards, sparsely pilose with simple hairs, 2–2.5 mm long. **Capsule** and **Seed** not seen.

Flowering: Found in flower in November.

Etymology: The specific epithet “*grandidentata*” refers to the large teeth of the leaf margin.

Distribution: As far as is known, this species is endemic to the Mishmi Hills of Arunachal Pradesh. It was collected between Roing and Mayodia in the Dibang Valley.

Habitat: The new species is found in semi-evergreen primary forest, growing in semi-open, moist conditions on humus-rich rocky soil at an altitude of 1182 m a.s.l., associated with *Colocasia* spp., *Begonia* sp., *Chromolaena odorata* (L.) R.M.King & H.Rob. and various fern species.

Proposed IUCN Conservation category: This new species is only known from one locality near Koni village, Hunli, lower Dibang valley district, Arunachal Pradesh. Only 4–8 individuals were found within a 100 m stretch. This population may decline in quality in the near future due to anthropogenic factors, especially road construction and human settlement. A preliminary assessment as ‘Data Deficient’ (DD) is proposed due to the poorly known population size and potential threats (IUCN Standards and Petition Committee, 2024). Further investigation is required to understand the species’ population size, range distribution, and ecology.

Notes: Although known only from a single collection, this species is remarkable. It is clearly part of *Goldfussia* sensu Bremekamp (1944) because of the distinct androecium with the short inner (shorter) incurved subspherical anthers. This assemblage is absent from Peninsular India but very well-represented in the Himalayas and SE Asia (Wood and Scotland, 2006). Many species of this group, such as *Strobilanthes pentastemonoides* (Nees) T. Anderson, *S. discolor* (Nees) T. Anderson or *S. oxycalycina* J.R.I. Wood have flowers clustered in small heads with caducous often scarious bracts, the bracteoles absent in some cases. Species with relatively large heads, such as *Strobilanthes capitata* (Nees) T. Anderson, often have persistent green, herbaceous bracts and the presence of bracteoles. The new species, *Strobilanthes grandidentata*, is thus unusual among Indian species in its pale blue flowers and small flower heads with persistent green bracts. Some Malesian species, especially *S. sumatrana* Miq., appear similar (Wood & Scotland, 2006) in the size and indumentum of the calyx and corolla, the shape of the bracts and even the leaf dentation, but differ in the absence of bracteoles and the presence of caducous bracts. The shiny green elliptic leaves of the new species with 3–4 prominent teeth on each side of the lamina combined with a winged petiole are very distinctive. The apparent absence of cystoliths is also noteworthy.



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