

RESEARCH ARTICLE

## Two plant species new additions to the state flora of Tamil Nadu, India

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**Abstract:** While working on the endemic plants of Tamil Nadu, authors have collected two plant specimens from high-altitude plateaus of Nilgiris. Perusal of literature revealed that these two plant species have not been reported earlier from Tamil Nadu state namely *Strobilanthes aurita* J.R.I Wood (Acanthaceae) and *Swertia lawii* (C.B. Clarke) Burkill. (Gentianaceae), hence these plant species are reported here as new distributional record to the state flora of Tamil Nadu.

**Key words:** Acanthaceae, Gentianaceae, New records, *Strobilanthes*, *Swertia*.

### Introduction

Tamil Nadu state lies between 8° 7' and 13° 35' and 76° 15' and 88° 20' E which covers about 1,30,058 Km<sup>2</sup>, and occupied 4.08 % of the total area of India. The vegetation of the area is composed of tropical rain forests, deciduous forests, dry thorn forest, montane sholas, grass lands and mangrove forests. Climatic conditions serve the occurrence of rich number of floristic diversities in Tamil Nadu. Nilgiris are well-known for its floristic richness in Tamil Nadu and showing enormous variation in the altitude, rainfall, climate and vegetation, with rich biodiversity.

*Swertia* L. (1753: 226), the largest genus of sub-tribe Swertiinae (Grisebach) Reichenbach (1837: 210), is represented by 137 species worldwide (Struwe *et al.* 2002, Chen *et al.* 2008; Ho and Liu 2010). India is home for 20 species and one variety (Shah 1990, 1992), from which six species are endemic to southern India. Whereas in the genus *Strobilanthes* Blume (1826: 781) were recorded in south and southeast Asia and Melanesia with about 400 species (Mabberly 2017) and it is represented with 150 species in India and with 62 species in southern Peninsular India (Carine and Scotland 2002; Venu 2006). The Western Ghats have been

reported to inhabit 64 taxa of *Strobilanthes* (Augustine 2018). Several new species of *Strobilanthes* have been accounted recently in the Western Ghats especially in Tamil Nadu part (Scotland 1998, Thomas *et al.* 2019).

### Materials and methods

While documenting endemic flora of Tamil Nadu authors have collected two plant species from Nilgiris. The plant specimens were preserved in the form of herbarium by following standard herbarium methods (Jain and Rao 1977). The voucher specimens was primarily identified by using regional floras and monographs (Gamble 1921, Nair *et al.* 1989, Narasimhan and Irwin 2021, Venu 2006) and the identification of each species was confirmed by consulting herbaria of BSI (southern circle, Coimbatore), E and K. Perusal of literature on the Flora of Tamil Nadu revealed that the identified plants have not been reported from Tamil Nadu state so far (Gamble 1956, Narasimhan and Irwin 2021). The authentic identification of these two plants species confirmed with type specimens available at Royal Botanic Garden, Edinburgh (E) and Herbarium of the Royal Botanic Garden, London (K) respectively. The voucher specimens were deposited in the herbarium of The Madura college, Madurai, Sri Ganesan Herbarium (SGH) Madurai. Field

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observations noted the flowering and fruiting period and associated plant species for better understanding of collected species. After critical investigation on the collected specimens were identified as *Swertia lawii* (C.B. Clarke) Burkill (Fig. 1A) and *Strobilanthes aurita* J.R.I. Wood (Fig. 1B) (Venu, 2006; Nayaret *al.*, 2014; Nampy *et al.* 2015, Augustine 2018).

### Taxonomic treatment

***Swertia lawii*** (Wight & Arn.) Burkill, J. Proc. Asiat. Soc. Bengal 2: 379 .1906. *Ophelia lawii* Wight & Arn, Ill. Ind. Bot. 2: 175, t.157. 1850. *Swertia corymbosa* var. *lawii* (Wight & Arn) C.B. Clarke, Fl. Brit. India 4: 126. 1883. *Ophelia pauciflora* Hooker's, J. Bot. Kew Gars. Misc. 3: 211. 1851. *Swertia pauciflora* (Dalzell) Shah, Pakistan J. Forest. 38 (2): 81. 1988 (Fig.1A).

Annual herbs, up to 20-80 cm high, glabrous. Stem tetragonal, branched. Leaves simple, sessile, 1.3-3.0 x 0.4-1.8 cm, secondary veinlets 3-5 both sides; base cuneate, ovate-lanceolate or deltoid, apex acute. Inflorescence axillary or terminal corymbs; bracts linear-lanceolate, 2.5-4.5 x 0.9-1.5 cm. Calyx lobes 4, divided from the base, 4-12 x 1.5-2.5 mm, linear-lanceolate; acuminate apex. Corolla lobes 4, white with dark blueveins half of the length, tube 0.5-1.5 mm long, ovate, 8-12 x 2.5-5 mm; apex mucronate or acuminate; glands 1 on each corolla lobe, ovate; fimbriate 0.8 x 1.3 mm long. Glands 1, base thick, green, apex fimbriate, pocket shaped. Stamens 4, filaments ca. 2-5 mm long, white, anthers 0.5-1 x 0.3- 0.7 mm, yellow. Ovary oblong, 4.5-7x1-2.5 mm; styles 0.1-0.2 mm long, orbicular-suborbicular. Fruit capsule, oblong, 5-10 x 1-2.5 mm. Seeds 0.4-0.6 x 0.1-0.5 mm, brown.

**Distribution:** Endemic to Southern India, Kerala and Karnataka (Nampy *et al.* 2015) and Tamil Nadu.

**Flowering and Fruiting:** October-January.

**Habitat and Ecology:** *Swertia lawii* grows among the grasses of high altitude plateau of Nilgiris associated with *Andrographis lobelioides*, *Chrysopogon fulvus*, *Justicia nilgherrensis*, *Lucas lavandulifolia*, *Swertia corymbosa* and *Tripogon ananthaswamianus*.

**Specimens examined:** INDIA, Tamil Nadu, Nilgiris, Sholurmattam, 27.11.2018, M. Uday Kumar and S. Karuppusamy 2304 (SGH).

***Strobilanthes aurita*:** J.R.I. Wood, Kew Bull. 50(1): 12. 1994; Venu, *Strobilanthes* Penins. India 64. 2006; Augustine, *Strobilanthes* Western Ghats, 74. 2018. *Strobilanthes caudatus* auct. non T. Anderson 1867; Bedd., Icon. Pl. Ind. Orient.: 49, t 213. 1874; C.B. Clarke in Hook. f., Fl. Brit. India 4: 441. 1884; Gamble, Fl. Madras 1040. 1924. *Mackenzia caudate* auct. non *Strobilanthes caudatus* T. Anderson, 1867; Ramamoorthy in C.J. Saldanha & Nicolson, Fl. Hassan: 553. 1976; V.S. Ramach. & V. J. Nair, Fl. Cannanore: 343. 1988. Kesh. Murthy & Yogan., Fl. Coorg: 336. 1990; Vajr., Fl. Palghat: 355. 1990 (Fig. 1B).

Shrubs, up to 1-2.5 m high, stem slender, much branched, terete, glabrous below, pubescent above. Leaves simple, unequal or subequal, opposite, 13.5 x 3.5 cm, elliptic or lanceolate, base cuneate, margin undulate or entire, apex caudate, coriaceous, secondary vein 10-13 pairs, petiole 1.8 cm long, minutely villous or glabrous. Inflorescence head, axillary, 1-3 together, 3-6-flowered, 2 cm long, involucre bracts 2, peduncle 3 cm long, villous, bracts linear-oblong, acute, 2.5 cm long, ciliate, densely villous above, beneath hispid; bracteoles small, 7 mm long. Calyx divided from the base, ca. 8 mm long, lobes 5, slender, unequal, one longer, remain 4, 2 equal pairs, acute, oblong, both surfaces hispid. Corolla tubular-ventricose, 1.8 cm long; tube short, 1.5 cm long, pale yellow or white with a red tinges on tube; lobes orbicular. Stamens 4, truncate at apex, hairy; filaments ca. 4 mm long; smaller ones ca. 3 mm, glabrous. Ovary ca. 3 mm long, glabrous below, apex glandular hairy; style persistent, 1.2 cm long. Fruit capsule, 1.5 cm long, broadly elliptic, apex acute. Seeds 4, ovoid, ca. 2 mm across, glabrous, brown.

**Distribution:** Endemic to Southern India, Kerala and Karnataka (Venu, 2006; Augustine, 2018), and Tamil Nadu.

**Flowering and Fruiting:** November - December, Flowering periodicity five years once (Venu, 2006).

**Habitat and Ecology:** Evergreen forests of Western catchment area of Mukurthy above 1500 m



**Figure 1:** A. *Swertia lawii* (C.B. Clarke) Burkill (Gentianaceae); B. *Strobilanthes aurita* J.R.I. Wood. (Acanthaceae)

elevation and associated with *Arundinella setosa*, *Kleinia walkeri*, *Pogostemon nilagiricus*, *Strobilanthes malabarica* and *Strobilanthes homotropus*.

**Specimen examined:** INDIA, Tamil Nadu, Western catchment area of Mukurthy, 28.11.2018, M. Uday Kumar and S. Karuppusamy 2397 (SGH).

## Disucssion

The genus *Swertia* has been revised in southern India (Nampy *et al.* 2015) and *Swertia lawii* is not mentioned for Tamil Nadu. It has been recorded only in Kerala and Karnataka. *Strobilanthes aurita* was mentioned by Gamble (1956) in Flora of Presidency of Madras, but it was recorded from Brahmagiri and Bababudan hills of Mysore district of Karnataka. Both the species are not recorded so far from Tamil Nadu, hence the present communication reported these two species are new additions to the Flora of Tamil Nadu.

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