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NOTE

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The genus *Strobilanthes* Blume is mostly represented in the tropical Asia and Australia and includes about 450 species (Mabberley 2005). In India, this genus is represented by 146 taxa (Karthikeyan et al. 2009) mostly in the Himalaya and the Western Ghats. Nayar et al. (2014) reported 62 taxa from the Western Ghats and Venu (2006) identified 59 taxa from the subcontinent. In Kerala, 43 taxa have been recorded (Sasidharan et al. 2016). During recent botanical exploration in Paithalmala, Kannur District, Kerala, the authors found two interesting populations of *Strobilanthes* in bloom. Detailed study of pertinent literature (Gamble & Fischer 1923; Sasidharan 2004; Nayar et al. 2006; Venu 2006; Remadevi & Kumar 2009) and comparison with authenticated herbarium specimens, they are identified as *S. canarica* Bedd. and *S. campanulata* Wight, which are not reported from Kerala. Detailed description, notes on habitat, distribution, and images are provided for identification and a better understanding of the taxa.

Strobilanthes canarica Bedd. (Image 1)

Icon. Pl. Ind. Or. 50, t. 215. 1874; Hook. f., Fl. Brit. India 4: 434. 1884; Gamble, Fl. Pres. Madras 1036. 1924. Venu (eds. Daniel & Sanjappa), *Strobilanthes* Blume (Acanthaceae) in Peninsular India 80. 2006. *Phlebophyllum canaricum* (Bedd.) Bremek. in Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk. Tweede Sect. 4: 271. 1944.

Shrubs, up to 1m high, profusely branched from the base; stems terete, hispid; nodes swollen, purplish

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brown when young; internodes 3–4 cm long. Leaves opposite, decussate, elliptic-lanceolate, 4–7.5×1.5–3.5 cm, margin entire, ciliate, apex acute, sometimes slightly acuminate, base cuneate, hispid above, veins hispid below; lateral veins 6–8 pairs, parallel, subopposite, grooved above, raised below; petioles 0.8–1 cm long, grooved above, dense hispid. Inflorescence trichotomous, axillary spikes, 4–5 cm long, cylindrical. Flowers bluish. Bracts obovate, 0.8–0.9×0.2–0.3 cm, apex sub-acute or obtuse, purplish, midrib and lateral veins prominent, veins villous outside, margin prominently ciliate, sparsely hispid near the apex. Bracteoles 2, linear-lanceolate, 4–5×0.6–0.8 mm, apex acute, margin ciliate, basally 3-nerved, midrib prominent, pubescent outside. Calyx tube 3–4 mm long, greenish, grooved, glabrous; lobes 5, subequal, linear lanceolate, two larger, 5–5.5 × 0.7–0.8 mm, three smaller, 4.5–5 × 0.6–0.8 mm, apex acute, hispid outside. Corolla bluish, tubular, ventricose; tube 3–3.5 mm long, glabrous, ventricose portion 6–7 mm long, densely hispid outside, villous inside near

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Image 1. *Strobilanthes canarica* Bedd., Habit.



Image 2. Herbarium of *Strobilanthes canarica* Bedd.

the anthers; lobes 5, lanceolate, 4–4.5 mm long, apex rounded, hispid outside, sparsely hispid inside. Stamens 2; staminal sheath arising from ventricose portion, 4–6 mm long; stamens equal, 4–5 mm long, laterally grooved; grooves hairy; anthers oblong, ca. 2mm long, black, dorsifixed. Ovary oblong, ca. 1mm long, grooved, glabrous; style 9–10 mm long, glabrous, swollen near the apex, twisted; stigma terminal. Capsules not seen.

Specimen Examined: 5677, 17.ix.2016, Paithalmala, Kannur District, Kerala, India, ±1200m, coll. Josekutty & J. Augustine (deposited at St. Thomas College Herbarium, Pala, Kottayam (STCP) (Image 2)).

Distribution: India (Karnataka (Uduppi & Hassan districts), Tamil Nadu (Nilgiris) & Kerala (present report), endemic.

Habitat: Dense aggregations along steep rocky slopes and along margins of grasslands at ca. 1200m.

Flowering: September–December.

Notes: *S. canarica* Bedd. is endemic to Western Ghats and show highly restricted distribution in threatened habitats. They are mostly found along Western Ghats ranges at medium altitudes in Karnataka (Kudremukh and Kodachadri hills). Recent studies (Venu 2006) are based on the collections of Saldanha and Ramamoorthy from Kudremukh National Park in 1970.

The present collection is from the grassland margins and rocky cliffs at above 1200m in Paithalmala, Kannur

District, Kerala. It is a part of Brahmagiri ranges of the Nilgiri phytogeographic cluster. The habitat is prone to anthropogenic wildfires in summer. The plant is monocarpic and the aerial part dies after flowering. Viable seeds are not formed and the multiplication is through root propagules. Since the distribution of the species is highly restricted and found in threatened habitats the species is likely to be highly threatened and needs to be properly evaluated for the IUCN Red List. Since it is rare and under threatened category, urgent measures are needed for the conservation of this species.

***Strobilanthes campanulata* (Images 3 & 4)**

Wight *Icon. Pl. Ind. Orient.* 4: 8, t. 1562. 1850. Gamble, *Fl. Pres. Madras*: 1042. 1924; Venu (Eds. Daniel & Sanjappa), *Strobilanthes* Blume (Acanthaceae) in *Peninsular India* 78. 2006. *S. lupulina* T. Anders. in *Linn. Soc., Bot* 9: 469. 1867. *S. heyneanus* Nees var. *campanulata* (Wight) C. B. Clarke in *Hook. f., Fl. Brit. India; Nilgirianthus campanulatus* (Wight) Bremek. in *Verh. Kon. Ned. Akad. Wetensch. Afd. Natuurk. Tweede Sect.* 41: 271. 1944.

Subshrubs, up to 70cm high, branches sub erect. Stems tetragonous, slender, dark green, laterally grooved, sparsely hispid; internodes 6–10 cm long.



Image 3. *Strobilanthes campanulata* Wight, Flowering twig.

Leaves opposite, decussate, ovate-lanceolate, 8–14 × 3.5–6 cm, apex acuminate, base oblique, decurrent on petioles, margin crenate, ciliate, sparsely hispid above, veins hispid below; lateral veins 7–9 pairs, raised on both sides, opposite or sub-opposite; petiole 0.5–2 cm long, flat, sparsely hispid laterally. Inflorescence axillary, paired, short spikes, ca. 2.5 × 1 cm, ovoid, green. Flowers 4–8, bluish; peduncles 2–2.5 cm long, green, slender, tetragonous, grooved laterally, glabrous. Involucral bracts 2, lanceolate, 6–7 × 1.5–2 mm, apex acute, green, thick, glabrous, green, midrib raised below. Basal bracts sterile, elliptic-lanceolate, 1.5–1.8 × 0.6–0.8 cm dark green, two pairs, apex subacute or obtuse, glabrous, midrib grooved above. Bracts lanceolate, 1.2–1.5 × 0.6–0.8 cm, apex subacute or obtuse, glabrous, veins distinct, many, arising from the base. Bracteoles absent. Calyx tube 2–2.2 mm long, creamy white, glabrous; lobes 5, unequal, 2 larger, linear-lanceolate, 3.2–3.5 × 0.8–1 mm, 3 smaller, linear-lanceolate, 2.5–3 × 0.8–1 mm, apex obtuse or sub-acute, glabrous, purplish outside. Corolla tube 1.4–1.6 cm long, white, gradually widening above, glabrous outside, hispid inside near the anthers; lobes 5, short, broadly ovate, 2–2.5 × 3–3.2 mm, apex rounded, wavy, bluish. Staminal sheath arising from the base of the corolla tube, 8–9 × 2–2.5 mm, apex truncate, margins free, hispid; stamens 4, didynamous,



Image 4. *Strobilanthes campanulata* Wight, Inflorescence.

included; longer filaments 5–5.5 mm long, shorter ones 4–4.5 mm long, hispid; anthers creamy white, basifixed, oblong, 1.8–2.2 mm long. Ovary ovoid, ca. 1.5 × 1 mm, light green, glabrous; ovules 4; disc cylindrical dark purplish, glabrous; styles 1.3–1.5 cm long, sparsely hispid, slender, swollen near the stigma white; stigma terminal. Capsules oblong, ca. 1 cm long, glabrous, apex acute, 4 seeded; seeds brownish, ovoid, smooth.

Specimens examined: 5690, 20.x.2016, Paithalmala, Kannur District, Kerala, India, ±320m, coll. Josekutty & J. Augustine (deposited at St. Thomas College Herbarium, Pala, Kottayam (STCP) (Image 5)).

Distribution: India (Chhattisgarh, Karnataka (Uduppi & Kodagu districts), Kerala (present report) and Madhya Pradesh).

Habitat: Dense aggregations along slopes at lower altitudes and in plains.

Flowering and fruiting: August–December

Notes: *S. campanulata* Wight is endemic taxa with restricted distribution in peninsular and central India. It grows well in the lower elevations of Western Ghats (less than 500m) as dense and dwarf aggregations. The species shows close similarity to *S. heyneanus* Nees and formerly included as its variety. The general habit, vegetative characters and the inflorescence show some degree of similarity but differs from the latter in the floral characters. The species is not reported from anywhere recently and the most recent collection dates back to 1940.



Image 5. Herbarium of *Strobilanthes campanulata* Wight.

The present collection is from the forest margins along the valleys at 300m in Paithalmala, Kannur District, Kerala. The area is prone to wildfires and other anthropogenic disturbances like grazing. Since the species has restricted distribution in highly threatened habitats, it is likely to be threatened and needs to be properly evaluated for the IUCN Red List and in need of critical conservation measures of its habitat.

References

- Gamble, J.S. & C.E.C. Fischer (1923). *Strobilanthes*, pp. 1036–1042. In: *Flora of the Presidency of Madras*. Newman and Adlard, London.
- Karthikeyan, S., M. Sanjappa & S. Moorthy (2009). *Flowering plants of India - dicotyledons* Vol. I (Acanthaceae: Avicenniaceae). Kolkata, India: Botanical Survey of India, 41–60pp.
- Mabberley, D.L. (2005). *The Plant - Book. 2nd Edition*. Cambridge, UK: Cambridge University Press, xvi+858pp.
- Nayar, T.S., A.R. Beegam & M. Sibi (2014). *Flowering Plants of the Western Ghats, India* - Vol. 1. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram, x+934pp.
- Remadevi, S. & M.S.B. Kumar (2009). *Contribution to the Flora of Kerala: The Family Acanthaceae*. Bishen Singh, Mahendra Pal Singh, Dehra Dun, India, 193pp.
- Sasidharan, N. (2004). *Biodiversity Documentation for Kerala Part - 6: Flowering Plants*. Kerala Forest Research Institute, Peechi, Kerala, 702pp.
- Sasidharan, N., P. Sujanalal, K.J. Dantas & A.J. Robi (2016). An enigmatic new species, *Strobilanthes agasthyamalana* (Acanthaceae), from Agasthyamala Biosphere Reserve of southern Western Ghats, India. *Kew Bulletin* 71: 51; <http://doi.org/10.1007/S12225-016-9667-0>
- Venu, P. (2006). *Strobilanthes Blume (Acanthaceae) in Peninsular India*. Botanical Survey of India, Kolkata, India, 216pp.



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