Taiwania 62(1): 63–66, 2017
DOI: 10.6165/tai.2017.62.63

Strobilanthes sainthomiana-A new species of *Strobilanthes* Blume (Acanthaceae) from Western Ghats, India

Jomy AUGUSTINE[1], Elayanithottathil Joseph JOSEKUTTY[1,2,*] and Punnakot BIJU[1,3]

1. Department of Botany, St. Thomas college, Pala, Kottayam-683584, India.
2. Department of Botany, Govt. Brennen College, Thalassery, Kerala-670106, India.
3. Department of Botany, Govt. College, Kasaragod, Kerala-671123, India.
[*] *Corresponding author Tel.:+91- 944-7648783; Email: ejjosekutty@gmail.com*

(Manuscript received 21 August 2016; accepted 7 January 2017; online published 20 Febreary 2017)

ABSTRACT: *Strobilanthes sainthomiana*, a new species of *Strobilanthes* from Western Ghats, India is described and illustrated. It is closely allied to *S. kunthiana* in having bushy habit, elliptic-ovate leaves, similar spikes, tubular ventricose corolla and included stamens, but differs in having leaves with cuneate bases and serrulate margins, hispid veins, longer petioles, inflorescence on long unbranched spikes, smaller lanceolate bracts, bracteoles longer than calyx, staminal filaments with long flexuous hairs and glabrous ovary with shorter styles with swollen areas. Notes on ecology and conservation status are also provided.

KEY WORDS: Acanthaceae, India, new species, Paithalmala, *Strobilanthes sainthomiana*, Western Ghats.

INTRODUCTION

The genus *Strobilanthes* Blume is mostly represented in the tropical Asia and Australia and includes about 450 species (Mabberly, 2005). Even though taxonomically confusing, palynological (Wang and Blackmore, 2003; Wood and Scotland, 2009) and molecular phylogenetic (Moylan *et al*, 2004) data along with other morphological characters provide light into taxa delimitation and classification in the genus. In India they are found abundantly in the evergreen forests and a few in the plains. The habit ranges from subshrubs to small trees with definite phenology. Nearly 146 species (Karthikeyan, 2009) known to occur in India and among these 59 are reported from the peninsular region (Venu, 2006). In Kerala 43 species are known to occur (Sasidharan, 2004) including some rare species. During an exploration trip in October 2015, the authors found an interesting population of *Strobilanthes* and collected specimens with bloom from the Paithal mala Hills (Western Ghats), Kannur district, Kerala. The specimen shows close similarity to *S. kunthiana* (Nees) T. Anders. in some of the vegetative and floral characters. The specimen was referred to Dr. Mark Carine, The Natural History Museum, London for expert opinion. Detailed study and analysis with literature (Gamble, 1924; Valsaladevi & Mathew, 1985; Dassanayake, 1994; Nayar *et al* 2006; Karthikeyan *et al*, 2009; Venu, 2006; Wood and Scotland, 2009; Carine *et al* 1998; Carine *et al* 2004), herbarium specimens (CALI! Augustine J. 12040: KFRI! Augustine J. 12360, Kishore kumar K.16551) and expert opinion confirmed the uniqueness of the specimen and hence described as a new species (Fig. 1).



Fig. 1. ***Strobilanthes sainthomiana*** Augustine J., Josekutty & Biju. **A.** Habit, **B**. Inflorescence, **C**. Pollen (SEM) low magnification, **D.** Pollen (SEM) showing exine structure.

臺灣大學學術期刊資料庫

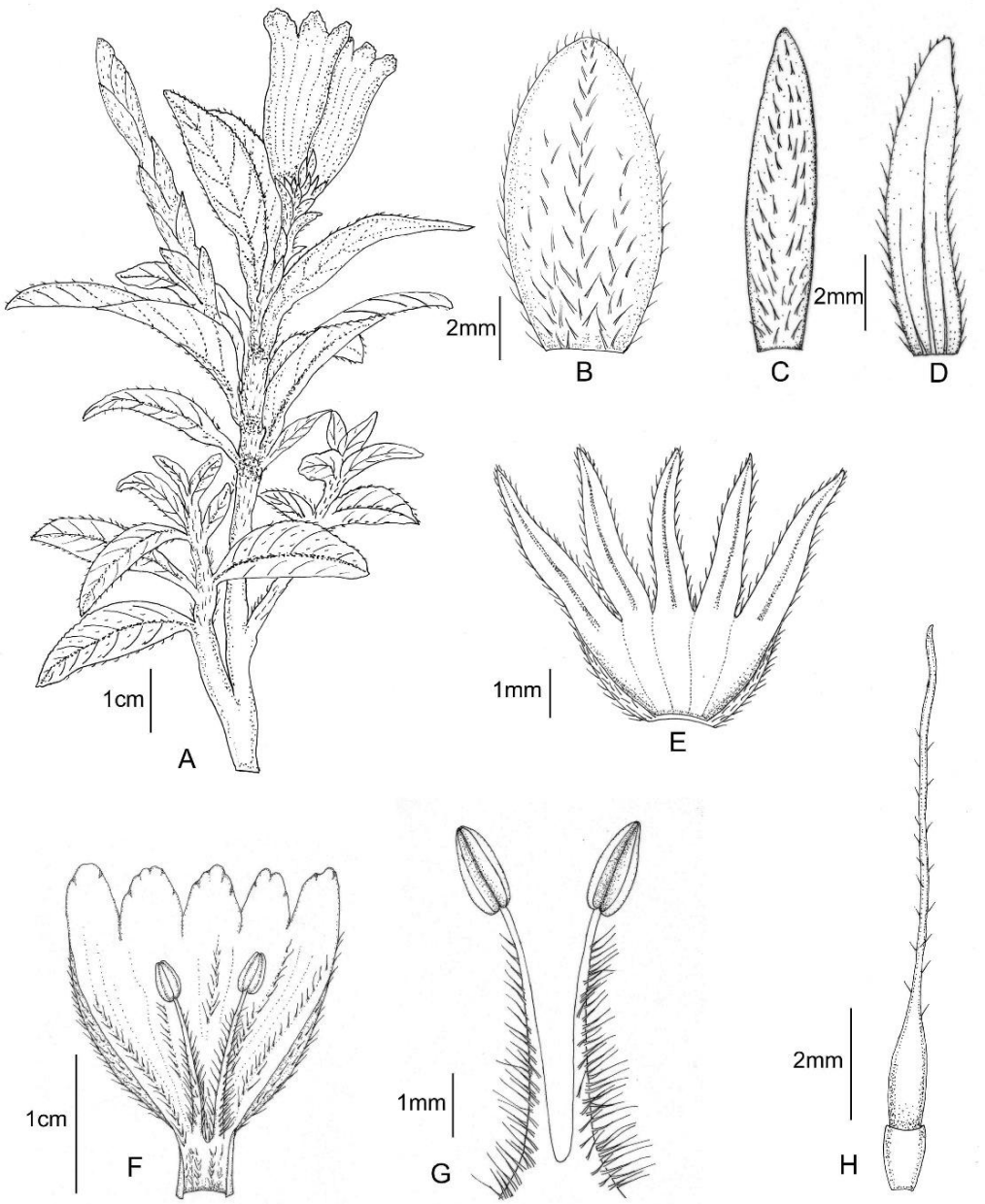


Fig. 2. ***Strobilanthes sainthomiana*** Augustine J., Josekutty & Biju. **A**. Flowering branch, **B**. Bract (dorsal view), **C**. Bracteole (dorsal view), **D**. Bracteole (Ventral view), **E**. Calyx tube split open, **F**. Corolla split open **G**. Androecium, **H**. Gynoecium.

TAXONOMIC TREATMENTS

Strobilanthes sainthomiana Augustine J., Josekutty & Biju, ***sp. nov.*** **Figs. 1 & 2.**

Similar to S. kunthiana in having bushy habit, elliptic-ovate leaves, similar spikes, tubular ventricose corolla and included stamens, but differs in having leaves with cuneate bases and serrulate margins, hispid veins, longer petioles, flowers in long unbranched spikes, smaller lanceolate bracts, bracteoles longer than calyx, staminal filaments with long flexuous hairs and glabrous ovary with shorter nodulose styles.

Typus - INDIA, Kerala, Kannur District, Paithalmala 20 Nov. 2015 (with flowers) 12°10′39″N 75°32′21″E, 1070 m, *Josekutty & Augustine J. 4930* (holotype MH isotypes KFRI, CALI)

Shrubs, up to ca 1 m high, branching from the base. Stem terete below, quadrangular above, jointed, nodes swollen, profusely branched, branches at right angles to stem, dense hispid, grayish, internodes ca 2 cm long. Leaves opposite, decussate, estipulate, lamina 3–5 × 1–2 cm, elliptic-ovate, apex acute, base cuneate, margin serrulate, hispid on veins, rest of the lamina sparsely bristly above, hispid on midrib and lateral veins below,

臺灣大學學術期刊資料庫

Table 1. Diagnostic morphological characters of ***S. sainthomiana*** sp. nov. and ***S. kunthiana*** (Nees) T. Anders.

Characters	***S. sainthomiana*** *sp.nov.*	***S. kunthiana*** (Nees) T. Anders.
Habit	Shrubs, ca 1 m high, branches long, dense hispid.	Shrubs, ca 2 m high, branches stout, glabrous.
Leaves	Leaf base cuneate, margins serrulate, hispid on mid rib and lateral veins	Leaf base acute, margin crenate-serrate, dense hispid except veins above, floccose hispid below.
Inflorescence	Spikes unbranched.	Spikes unbranched or branched.
Bract	Bracts ca 8 mm long, hispid, lanceolate, with prominent midrib.	Bracts ca 12 mm long, elliptic-ovate, white villous, midrib not prominent.
Bracteole	Subulate, ca 12 mm long, longer than calyx, bristly outside, glabrous inside with prominent midrib.	Lanceolate, ca 10mm long, shorter than calyx, floccose at margin and middle, midrib not prominent.
Calyx	Lobes ca 10 mm long, divided below half from the base, hispid outside and glabrous inside, subulate.	Lobes ca 12 mm long, divided almost half from the base, floccose-villous, linear-lanceolate.
Corolla	Tubular ventricose portion ca 2 cm long, hairy through 5 distinct lines inside, hispid outside.	Tubular ventricose portion ca 2.5 cm long, hispid inside, glabrous outside.
Androecium	Staminal filaments grooved, with long hairs arising from the groove.	Staminal filaments not grooved, pilose hispid.
Pollen	Oblong, 45–50 × 30–35 µm 3-zonocolporate, pseudocolpi 6 or 7 in each mesocolpium, ridges 3-3.2 µm broad.	Ellipsoidal, 60–86 × 40–53 µm, 3-zonoporate, pseudocolpi 5 in each mesocolpium, ridges ca 2.19 µm broad.
Gynoecium	Ovary glabrous, style ca 6 mm long, swollen at 2 or 3 places.	Ovary hairy at the apex, style ca 15 mm long, swollen areas absent.
Fruits	Not seen	Oblong, 4-seeded.

lateral veins 6–7 pairs, subopposite, close, impressed above, raised beneath; petioles 7- 10 mm long, hispid, grooved above. Inflorescence axillary, spikes 5-7 cm long; peduncle hispid, flowers violet or bluish; bracts 8–10 × 2.5–3 mm, lanceolate, apex acute, hispid, with prominent midrib. Bracteoles 2, equal, subulate, ca 12 × 0.5 mm, longer than calyx, bristly outside, glabrous inside with prominent midrib. Calyx tube cupular, green, divided below half from the base, ca 6 mm long, lobes equal, ca 4 mm long, subulate, hispid outside, green. Corolla tubular ventricose, tube ca 5 mm long, narrow, ventricose portion ca 1.2–1.5 cm, hairy through 5 distinct lines inside, hairs flexuous, pilose hispid outside; lobes 5, equal, orbicular, ca 5 × 4.5 mm long, hispid outside. Stamens 2, monadelphous, equal, filaments ca 7 mm long, arising from base, grooved, with long hairs within; anthers oblong, glabrous. Pollen ellipsoidal, prolate in equatorial view, 45–50 × 30–35 µm; 3-zonicolporate; colpi equidistant, fusiform, ends acute, sub-polar, margins raised; pores 3, equatorial, circular; pore surface smooth; exine differentiated into pseudocolpi alternating with ridges, pseudocolpi 18–21, 6 or 7 in each mesocolpium, extension polar; ridges 18–21, 3-3.2 µm broad, 6 or 7 in each mesocolpium, circumpolar; tectum reticulate, irregular with circular perforations. Ovary oblong, 1.8 × 1mm, with prominent orbicular disc below, ca 1 × 0.8 mm, ovules 4, reniform, style up to 6 mm long, filiform, sparsely bristly hairy, with 1 or 2 elongated swollen areas, stigma blunt.

Etymology: The new species is named after the prestigious St. Thomas College, Pala, Kottayam, Kerala, India which is one of the pioneer and premier educational institutions in Kerala where active botanical research is going on.

Phenology: The flowering occurs from October to January.

Ecology: The new species is distributed mostly in the windward side of Paithal mala (Southern Western Ghats) at an elevation of ±1100 m asl which forms a part of Brahmagiri ranges of Nilgiri Phytogeographical zone. They are found in the margins of shola like forests, in the grass lands and also along the rocky cliffs. The common associated species include *Rauvolfia verticillata* (Lour.) Baill. (Apocynaceae), *Strobilanthes lupulina* Nees, *Ligustrum perrottetii* A. DC (Oleaceae), *Chrysopogon hackelii* (Hook.f.) C.E.C. Fisch., *Themeda triandra* Forssk. *Cymbopogon flexuosus* (Nees ex Steud.) Wats. (Poaceae), *Rubus glomeratus* Blume (Rosaceae) and *Symplocos kurgensis* Clarke (Lauraceae).

Conservation status: The new species is distributed in the windward side of Paithalmala hills which is a popular hill station in Kannur District. The plants do not produce any seeds and new branches sprouts from the base after flowering. The population is quite large but not protected from anthropogenic disturbances. The possible damages due to tourism and manmade summer fires are the possible threats to the new species. Moreover the population is restricted to a smaller part of the study area (5 Km^2).

Additional specimens examined: **INDIA**: Kerala: Kannur District, Paithalmala, 12°10′41″N 75°33′16″E, 930 m, 26 Nov. 2015, *Josekutty & Augustine J.* 5562.

Interrelationships: The new species shows close similarity to *S. kunthiana* (Nees) T. Anders. but shows considerable variations in morphological details (Table 1).

臺灣大學學術期刊資訊庫

ACKNOWLEDGEMENTS

The authors express their sincere gratitude to Dr. Mark Carine, The Natural History Museum, London for commenting on the novelty of the specimen. The authors are also indebted to Principal St. Thomas College Pala, Kottayam, Kerala, India for providing research facilities. The second and third authors also thank University Grants Commission New Delhi for awarding teacher fellowship to complete research.

LITERATURE CITED

Carine, M.A. and R.W. Scotland. 1998. Pollen morphology of *Strobilanthes* Blume (Acanthaceae) from southern India and Sri Lanka. – Rev. Palaeobot. Palynol. **103(3-4)**: 143 – 165.

Carine, M.A., J.M. Alexander and R.W. Scotland. 2004. A Revision of the *Strobilanthes kunthiana*- Group (*Phlebophyllum* sensu Bremekamp) (Acanthaceae) Kew Bull. **59(1)**: 1–25

Dassanayake, M.D. (ed.) 1994. A revised handbook to the flora of Ceylon, Vol. VIII. Amerind Pub. Co., New Delhi. 458 pp.

Gamble, J.S. and C.E.C. Fischer. 1923. *Strobilanthes* In*: Flora of the Presidency of Madras*. Newman and Adlard, London, p. 2017.

Karthikeyan, S., M. Sanjappa and S. Moorthy. 2009. Flowering plants of India–Dicotyledons Vol. I (Acanthaceae–Avicenniaceae).Kolkata, India: Botanical Survey of India. p. 41-60.

Mabberley, D.L. 2005. The Plant–Book (2nd ed.). Cambridge, UK: Cambridge University Press. XVI + 858 p.

Moylan E.C., J.R. Bennett, M.A. Carine, R.G. Olmstead and R.W. Scotland. 2004. Phylogenetic relationships among *Strobilanthes* s.l. (Acanthaceae): Evidence from its nrDNA, *trnl-f* cpDNA, and Morphology. Am. J. Bot. **91(5)**: 724–735.

Nayar, T.S., A. Raziya Beegam, N. Mohanan and G. Rajkumar. 2006. Flowering Plants of Kerala-A Hand Book. Tropical Botanic Garden and Research Institute, Thiruvananthapuram, Kerala, India. pp. 1069.

Sasidharan, N. 2004. Biodiversity documentation for Kerala *Part 6:* Flowering Plants. Peechi, Kerala: Kerala Forest Research Institute. 702 p.

Valsaladevi, G. and P.M. Mathew. 1985 Pollen morphology of *Strobilanthes kunthianus.* Curr. Sci. **54 (7)**: 349-350.

Venu, P. 2006. *Strobilanthes* Blume (Acanthaceae) in Peninsular India Kolkata, India: Botanical survey of India. 216 p.

Wang, H. and S. Blackmore 2003. Pollen morphology of *Strobilanthes* Blume (Acanthaceae) in China and its taxonomic implications. Grana. **42(2)**: 82–87.

Wood, J.R.I. and R.W. Scotland. 2009. New and little-known species of *Strobilanthes* (Acanthaceae) from India and South East Asia. Kew Bull. **64(1)**: 3–47.

臺灣大學學術期刊資料庫