

Sonerila periyarensis sp. Nov.-A new species of Melastomataceae from Kerala, India

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ABSTRACT

Sonerila periyarensis, a new taxon was collected from the forest of Gavi, Periyar Tiger Reserve, Pathanamthitta district, Kerala, India is described. *Sonerila periyarensis* is similar to *S. zeylanica* and *S. nairii* but differs from it by having erect, translucent lesser- branched stem, ovate or ovate-lanceolate leaves with white-long glandular hairs adaxially, axillary condensed cyme with pink flower, funnel-shaped calyx tube with ovate-obovate petals and scattered glandular-hairy capsule. This combination of characters makes determining the relationships of *S. periyarensis* difficult.

Keywords: Sonerileae, Gavi, Periyar Tiger Reserve, *Sonerila zeylanica*.

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INTRODUCTION

Most members of Melastomataceae are reported as small trees, shrubs and mostly herbs. They are restricted mostly to the tropics of the world and are reported to have approximately 5115 species and 175 genera.^[1] The members are taxonomically unique and the leaves of Melastomataceae are different, having opposite-decussate, having 3-7 mid veins, plinerved. Flowers are trimerous, complete, and born either single or in terminal or axillary. *Sonerila* Roxb. belongs to the tribe Sonerileae which occupied mark part of tropical Asia, with 175 species. *Sonerila* is characterized by having three petals as opposed to five in the other members. The members of *Sonerila* are caulescent or acaulescent herbs or rarely shrubs of shady habitats, often with turgescient

leaves, with tubers. The members of the scapigerous or tuberous species of *Sonerila* prefer to grow in the spray zone of waterfalls, grasslands, and evergreen and shola forests of the Western Ghats.^[2] The members of this genus are characteristically opposite leaves, entire or serrulate leaf margins, scorpioid cymes inflorescence. Many species of *Sonerila* have restricted distribution with small populations and would thus be regarded as members of the red list.

Clarke^[3] recognized 43 species of *Sonerila* in the Flora of British India and 13 species in Flora of Presidency of Madras by Gamble.^[4] Lundin^[5] made an extensive taxonomic revision of *Sonerila* of Srilanka which includes many species of South India. The studies on the taxonomic revision of Indian *Sonerila* were attempted by several workers^[6-25] and documented the diversity and distribution of a considerable number of new species. So far, *Sonerila* is represented by 62 valid species and two varieties in India and 53 species and two varieties in the Western Ghats.^[26] As part of the exploration trip conducted at forest areas of Gavi, Periyar Tiger Reserve Pathanamthitta, Kerala, India, a taxonomically interesting specimen of *Sonerila* was collected. After

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careful examination of vegetative, flowering and fruiting specimens of *Sonerila* and analysis of available literature and herbarium specimens (K, MH, TBGT, CAL, GUD etc.; acronyms follow Thiers 2019), we concluded that the specimen belongs to an undescribed species of *Sonerila*. Hence, we describe it here as a new species with a detailed description based on the available living material. *Sonerila periyarensis* is closely allied to *S. zeylanica* Wight and Arn.^[27] and *S. nairii* Soumya and Maya.^[28] but differs from having erect, translucent lesser-branched stem, ovate or ovate-lanceolate leaves with white-long glandular hairs adaxially, axillary condensed cyme with pink flower, funnel-shaped calyx tube with Ovate-obovate petals and scattered glandular-hairy capsule. The holotype and isotype of the specimens were submitted to TBGT, Thiruvananthapuram.

Taxonomy

***Sonerila periyarensis* Deepthy Kumary, K.P. Sreekala, A.K., Usha V.S and Ramasubbu. sp. nov.**

TYPE: INDIA, Kerala, Pathanamthitta Dist; Gavi, Periyar Tiger Reserve, 9°26'42" N; Longitude; 77°9'28" E; Latitude 1190 m elev., 26 September 2015. Deepthikumary (Holotype TBGT 82261; Isotype TBGT 82261.)

Sonerila periyarensis is closely allied to *S. zeylanica* and *S. nairii* but differs from having erect, translucent lesser-branched stem, ovate or ovate-lanceolate leaves with white-long glandular hairs adaxially, axillary condensed cyme with pink flower, funnel-shaped calyx tube with Ovate-obovate petals and scattered glandular-hairy capsule (Table 1 and Figure 1).

Table 1: Comparative morphology of *Sonerila periyarensis* with *S. zeylanica* and *S. nairii*.

Characters	<i>Sonerila periyarensis</i>	<i>Sonerila zeylanica</i>	<i>Sonerila nairii</i>
Stem	Erect, succulent; translucent lesser branched, terete, semi-woody, pale pink with white glandular hairs.	Erect, tetragonal, glabrous, pale pink.	Decumbent, succulent, unbranched, subterete, glandular-hairy.
Leaves	Ovate, or ovate-lanceolate, 1.5-3.5×0.9-1.5 cm, white-long glandular hairs above, paler and scattered glandular hairs below.	Ovate acute, 0.5-35 cm, 3-5-veined, glabrous.	Ovate, 1.3-2.5cm. 3-nerved.
Leaf margin	Dentate-serrate, prominently 2-4 nerved.	Serrate, prominently 3-nerved.	Margin serrate prominently 3-5 nerved.
Petiole	Short, 0.5-1.0 cm long, adaxially grooved, terete, covered with long glandular hairs.	0.5-1.5 cm, adaxially grooved, with glandular trichomes.	1.0-2.0 cm, margin denticulate, hairy above.
Pedicel	0.5-0.7 mm long with glandular-hairy, shorter than hypanthium.	–	0.5-0.7 cm with few glandular trichomes.
Inflorescence	Unbranched, terminal or axillary condensed cyme, 3-6 flowered	Many-flowered umbel.	Axillary or terminal cyme, 1-2 flowered cyme.
Flower	Pink with scattered hairs on midrib.	White flower, glabrous.	Pink flowers, 3-4 glandular trichomes on the midrib.
Calyx tube	Funnel-shaped, 6.0-6.5 cm×2.2-2.5cm.	Funnel-shaped, 0.5 -1.0 cm.	Campanulate, 0.8-0.9 cm long.
Petals	Ovate-obovate.	Ovate-acute.	Orbicular-obovate.
Stamen	Stamen 3, filament equal, long, 0.3-0.38 cm.	Stamens 3, equal length filaments glabrous, white.	Stamens 3, equal length, filaments white, glabrous.
Capsule	Not ribbed, scattered glandular-hairy.	Not ribbed, glabrous.	Not ribbed, scattered glandular hairy.
Seeds	Many, ovate lanceolate, minutely tubercled, brown.	Ovate lanceolate or oblong acute with minute elevated points	Many, ovate-lanceolate, seeds minutely tubercled.

Erect non-tuberous herb, succulent, 8-18 cm high; stem translucent, lesser branched, tetragonal, semi-woody, pale-pink with white glandular hairs. Leaves opposite, thinly membranous, green in shady areas, red in open sunlight, ovate or ovate-lanceolate, acute or acuminate at apex, base rounded, unequal, 1.5-3.5×0.9-1.5 cm, pinkish with dense white long glandular hairs above, paler and scattered glandular hairs below, 0.3-0.4 mm, 2 - 4 veined, 2 pairs of veins prominently arise from above the midrib reached apex, lower pair not reached

at apex, margin dentate or serrate with a prominent spine-like bristles 0.2-0.3 mm. Petiole short, 0.5-1.0 cm long, adaxially grooved, terete, covered with long-glandular hairs. Inflorescence unbranched, terminal or axillary condensed cyme, 3-6 flowered. Peduncle more or less absent; Pedicel short, 0.4-0.6 mm long with glandular-hairy, shorter than hypanthium. Calyx tube funnel-shaped, 6.0-6.5 cm × 2.2-2.5 cm, green above, pink below, with scattered white glandular-hairs, 0.3-0.4 mm, calyx lobes 3, 0.2-0.35 × 0.1-0.2 cm ovate, acute

and pinkish- green with intermittent glandular hairs. Petals 3, 0.6-0.68×0.5-0.45 cm thin, membranous, ovate-obovate, acute or acuminate, mucronate at apex, pink, with a few glandular hairs on the margin, 2-3 glandular hairs on the midrib of the abaxial side. Stamen 3, filament long, 0.3-0.38 cm, white, anthers yellow, curved 0.18-0.23 cm, small, cordate at base, glabrous,

not beaked, dehiscence by apical pores. Ovary 3-celled, axile placentation. Style long, 0.8-0.9, slender, glabrous, stigma capitate, glabrous. Capsule campanulate, 0.7-0.8 × 0.43-0.52 cm, not ribbed, lobes prominent, scattered glandular-hairy. Seeds many, ovate-lanceolate, 0.05-0.07 × 0.07-0.09 cm, minutely tubercled, brown.

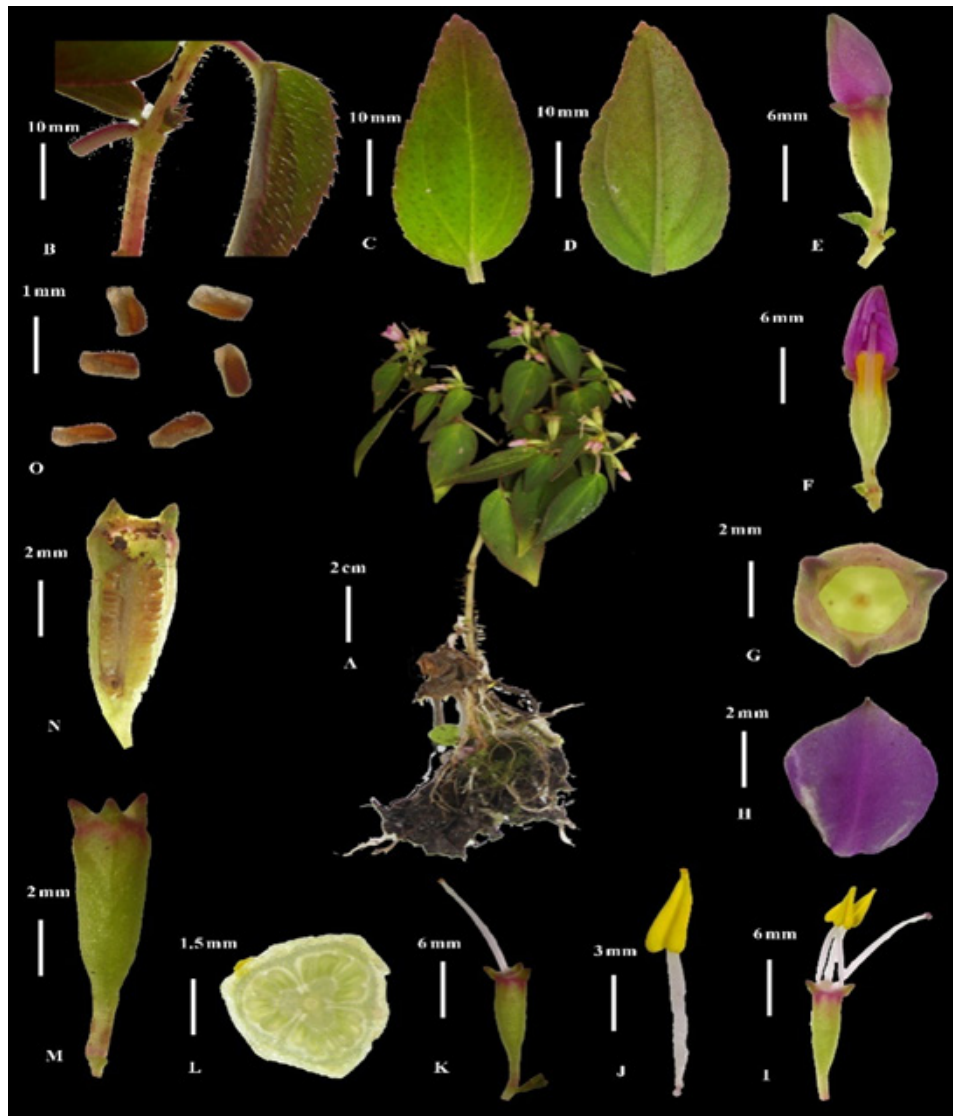


Figure 1: A) Habit of the individual; B) hairy stem; C) abaxial view of the leaf with white glandular hairs; D) abaxial view of the leaf with dentate- serrate margin; E) flower bud; F) L.S. view of flower bud; G) C.S. of ovary; H) abaxial view of petal; I) hypanthium with stamens; J) stamen; K) hypanthium with style and stigma; L) C.S. of ovary with ovules; M) view of fruit; N) L.S. view of capsule; O) seeds

FLOWERING AND FRUITING

August-December.

HABITAT AND ECOLOGY

It grows on the rock crevices, spray zone of waterfalls and marshy slopes of evergreen forests at an altitude of 1400 masl in association with *Selaginella* sp., *Crotalaria* sp., *Utricularia* sp. etc.

ADDITIONAL SPECIMENS EXAMINED

INDIA, KERALA, Pathanamthitta Dist., Gavi, Periyar Tiger Reserve, 1400 m asl, 12-10-2022, Deepthi Kumary 100971 (Paratype TBGT); KERALA, Pathanamthitta Dist. near Vandiperiyar, Gavi 1400 m asl, Gavi 1400 m, 18-11-2022, 17-11-2022 Deepthikumary 100995 (Paratype TBGT).

DISTRIBUTION

India: The distributional areas namely Gavi forest areas, Pathanamthitta.

CONSERVATION STATUS

The species was collected from Gavi forest areas of Pathanamthitta Dist. in the Western Ghats of Kerala. Only three or four populations of the species were noted. Further, a detailed assessment process has to be conducted to identify the IUCN status of the species. Effective efforts are essential to protect the existing population.

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DECLARATION OF CONFLICTING INTERESTS

The authors declare no competing interest.

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