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RESEARCH ARTICLE

Sonerila raghaviana sp. nov. (Melastomataceae), a new species from southern Western Ghats of Karnataka, India

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Abstract

Sonerila raghaviana, a new species of Melastomataceae collected from high altitude rocky grassland in Coorg District, Karnataka, India is described and illustrated. It differs from *Sonerila rotundifolia* by its densely hairy leaf lamina and inflorescence, inflorescence with up to 15 flowers, an obscurely ridged calyx tube with dense glandular bristles, deeply cordate anthers, and tubercled seeds and from *S. veldcampiana* by having angular hairy peduncle, densely glandular bristly calyx tube, petals with glandular hairs below, shortly acuminate non-beaked anthers, and densely bristly capsule.

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Introduction

The genus *Sonerila* Roxb. (Melastomataceae) is with about 175 species distributed from Sri Lanka and India to the Indo-Pacific (Cellinese, 1997; Lundin & Nordenstam, 2009), and are represented by caulescent and acaulescent species. It is the largest genus in the Sonerileae. In India the genus is represented by about 38 species. Clarke in Hooker's Flora of British India (1879) recognized 43 species of *Sonerila*. Out of the 43 species, 8 species were treated as "stemless or almost stemless species" and only 3, viz. *S. wallichii*, *S. scapigera* and *S. rotundifolia* were from Peninsular India. Gamble (1919) also recognized the above 3 acaulescent species among the total 13 species of *Sonerila* in his Flora of the Presidency of Madras. Later several workers (Nayar, 1976; Giri & Nayar, 1985, 1986a,b,c; 1987a, 1987b; Balakrishnan & Nair, 1982; Ansari & Nair, 1987; Gopalan & Henry, 1989; Prakash & Mehrotra, 1988; Giri et al., 1992; Pramanik & Chowdhery, 1992; Ravikumar, 1999; Murugan & Manickam, 2002; Josephine et al., 2003; Lundin & Nordenstam, 2009; Murugesan & Balasubramaniam, 2011; Ratheesh et al., 2013; Sunil et al., 2014) have described new species of the genus from India. Lundin (1998) made an extensive study of the Melastomataceae with special emphasis on *Sonerila* of South India.

During the systematic inventory of the genus *Sonerila* of Western Ghats, an interesting specimen was collected from Thalacauvery, Coorg District, Karnataka, at an altitude ± 1400 m and were found to be quite distinct from the hitherto known scapigerous species and detailed study revealed their novelty. It is described and illustrated here as a new species.

Sonerila raghaviana Ratheesh, Sunil, Nandakumar & Shaju **sp. nov.** Figs. 1; Plates 1 & 2.

Types: India, Karnataka: Coorg District, Thalacauvery hills, Grasslands and road cuttings, ± 1400 m, 27 August 2012, M. K. Ratheesh Narayanan & C. N. Sunil MSSH 3132 (*Holotype:* CAL; *Isotype:* MH;TBGT).

Scapigerous herbs, attaining up to 17 cm height, rhizome small, upto 0.6 cm diameter, sub-globose, white inside. Leaves radical, 3–5, petiolate, 5–13 cm long, adaxially canaliculated, pinkish, with scattered gland tipped bristles; lamina dull greenish to dark purplish above and deep pink below, thick, longer than broad, broadly ovate, base deeply cordate, with overlapping margins, margins serrate, acute to shortly obtuse at apex, 3.5–8 x 3–6 cm, densely hairy above, sparsely bristly below on prominent midrib and lateral veins, palmately veined, main nerves 3–4 pairs from the base, impressed above, raised and deep pinkish below. Inflorescence unbranched scorpioid cyme, upto 3 per plant, up to 15 flowered, peduncle quadrangular, longer than the petiole, covered with 1–1.5 mm long, purple gland tipped bristles, dense towards the apex, 6–15 cm long, light pink, bract and bracteoles not prominent. Flowers 3-merous, pink, 1.4–1.6 cm across, pedicel 0.5–0.6 cm long, longer in fruit, prominently glandular bristly, quadrangular, greenish pink; calyx tube shorter than the pedicel, 0.3–0.4 cm long, urn shaped, green with pink tinge, densely glandular bristly, obscurely ridged, lobes 3, ca. 0.1 cm long, broadly triangular, acute, glandular bristly; petals broadly obovate, base rounded, glabrous above, pink, 0.7–1 x 0.5–0.6 cm, mucronate at apex, midrib prominent with 3–5 gland tipped hairs abaxially; stamens 3, shorter than the petals, filaments inflexed in buds, ca. 0.3 cm long, glabrous, pinkish, anther deep yellowish, deeply cordate to sagitate at base, shortly acuminate, not beaked at apex, ca. 0.2 cm long, glabrous; ovary glabrous, sparsely hairy, style 0.6–0.7 cm long, deep pink at base, stigma capitate, deep purple, rugose. Capsules urn shaped, pedicellate, shorter than the pedicel, 0.4–0.5 cm long, enclosed in the persistent calyx tube, prominently ridged, densely glandular bristly, green with pink tinge. Seeds many, oblong, ca. 0.6 x 0.3 mm, pale brown, tubercled.

Interrelationships:—*Sonerila raghaviana* is a distinct scapigerous species and resembles *S. rotundifolia* in its angular peduncle and shortly acuminate anther. The size and texture of leaf lamina and peduncle, structure and texture of calyx tube, capsule and seed, number of flowers in the inflorescence and the shape of anther base, differentiate the new species from the latter. The new species has 3–6 cm wide densely hairy leaf lamina, up to 15 flowered inflorescence with gland tipped bristly long peduncle, obscurely ridged densely glandular bristly calyx tube, broadly obovate petals with 3–5 glandular hairs on midrib below, anthers with deeply cordate to sagitate base, in contrast to up to 3 cm wide glabrous leaf lamina, 1–4 flowered inflorescence with glabrous peduncle, glabrous calyx tube without ridges, orbicular to obovate petals without glandular hairs below, and anthers with truncate base of *Sonerila rotundifolia*. *Sonerila raghaviana* has an obcampanulate densely bristly capsule in contrast to the hemispheric glabrous capsule of *S. rotundifolia*. The seeds of the new species are prominently tubercled. In *Sonerila rotundifolia* seeds are not tubercled. The new species also resembles *Sonerila veldkampiana* in some of its characters like obscurely ridged calyx tube, deeply cordate anther, obcampanulate capsule and tubercled seeds. It mainly differs by its up to 15 flowered densely gland tipped bristly inflorescence, angular bristly peduncle, densely glandular bristly calyx tube, shortly acuminate anthers without a beak and densely bristly capsule in contrast to up to 35 flowered glabrous inflorescence, terete peduncle, glabrous calyx tube, beaked anthers and hairy capsule. Diagnostic morphological characters of *Sonerila raghaviana* and the related species are provided in Table 1.

Table 1. Comparison of characters of *Sonerila raghaviana* and related species.

	<i>Sonerila veldkampiana</i>	<i>Sonerila raghaviana</i>	<i>Sonerila rotundifolia</i>
Leaf lamina	5–7 cm wide, 12 nerved, 4 pairs of nerves arising from the base of the leaf and 2 pairs from the midrib, sparsely hairy on both sides	3–6 cm wide, 14 nerved, 3 pairs of nerves arising from the base of the leaf and 3 pairs from the midrib, densely hairy above, sparsely hairy below on midrib and lateral veins	1.5–3 cm wide, 7 nerved, nerved from near the base, glabrous
Inflorescence	Branched or unbranched scorpioid cymes with about 35 flowers	Unbranched scorpioid cyme with about 15 flowers	Simple scorpioid cyme with 1–4 flowers
Peduncle	Terete, up to 30 cm long, glabrous	Quadrangular, up to 15 cm long, glandular bristly	Angular, up to 8 cm long, hairy
Bract	Prominent, persistent, linear lanceolate	Not prominent	Not prominent

Calyx tube	Obscurely Ridged, glabrous	Obscurely ridged, densely glandular bristly	Not ridged, glabrous
Petals	9–10 mm long, broadly obovate, glabrous	7-9 mm long, broadly obovate, 3-5 glandular hairs on the midrib below	8–9 mm long, orbicular-obovate, glabrous
Anthers	Long acuminate, beaked, deeply cordate at base	Shortly acuminate, not beaked, deeply cordate at base	Shortly acuminate, not beaked, truncate at base
Capsule	Obcampanulate, crowned by a broad margin, glabrous	Obcampanulate, crowned by a broad margin, densely bristly	Hemispheric, crowned by a narrow margin, glabrous
Seed	Seed minutely tubercled	Seed prominently tubercled	Seed not tubercled

Distribution, habitat and ecology:— *Sonerila raghaviana* grows on high altitude grasslands at altitudes of 1400-1600 m a.s.l. It is known only from the Thalacauvery area of Brahmagiri Hills of the Coorg District, Karnataka State, India. Small populations of this species are distributed in grassy slopes and road cuttings in the area. The species appears with the onset the south-west Monsoon (June-July).

Flowering & Fruiting: Flowering from early July with peak in September; fruiting in October

Etymology: The epithet is proposed in honour of Prof. M. Raghavan, retired Professor of Botany Department, Payyanur College, Kannur, Kerala.

Additional specimen examined: — **INDIA:** Karnataka: Coorg District, Thalacauvery, Brahmagiri Hills, ±1500 m, 15 August 2014, Ratheesh Narayanan, C. N. Sunil & M. K. Nandakumar TBGT 1413.

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Plate 1: *Sonerila raghaviana* sp. nov. A. Habit; B. Flower bud; C. Flower; D. Immature fruit; E. Petal with gland tipped hairs; F. Stamen; G. Seeds.

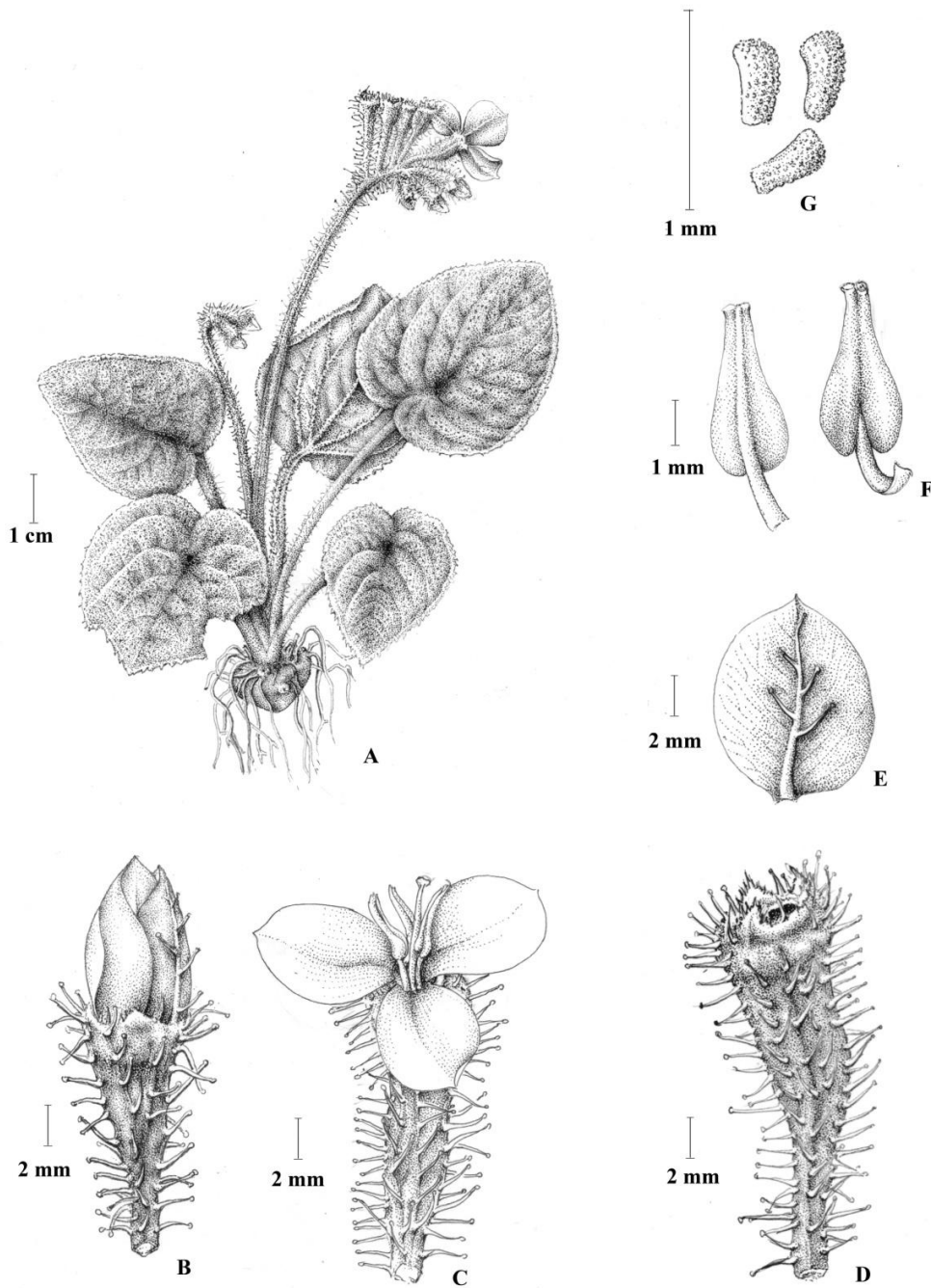


Plate 2: *Sonerila raghaviana* sp. nov. A. Habitat; B. Single plant; C. Leaves; D. Inflorescence; E. Single flower; F. Fruit

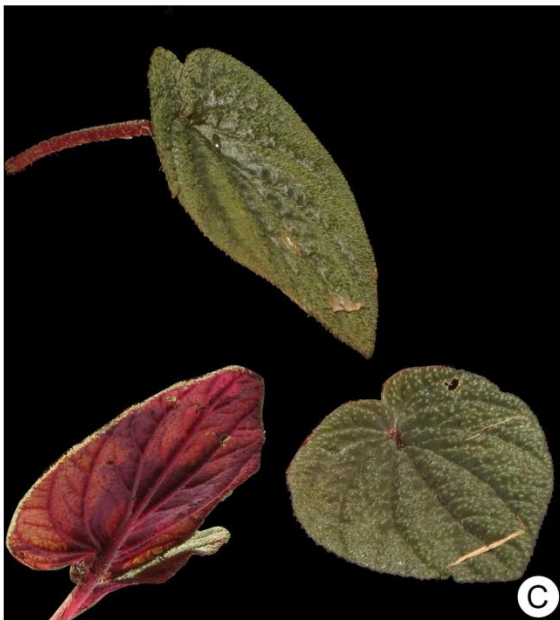
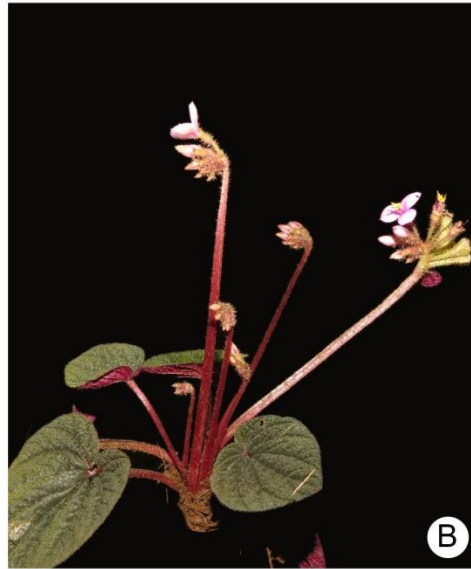


Plate 3: Comparative chart of *Sonerila raghaviana* sp. nov. (B1, B2, B3) and *S. veldcampiana* Ratheesh & Sivadasan (A1, A2, A3).

