
A New Variety of *Rungia linifolia* (Acanthaceae) from the Western Ghats of Karnataka, India

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ABSTRACT. *Rungia linifolia* Nees var. *saldanhae* Mascar. & Janarth. (Acanthaceae), a new variety from Kottigehara in Charmadi Ghat, Karnataka State (Western Ghats), is described and illustrated. The new variety is very similar to the typical variety *R. linifolia* var. *linifolia* in its filiform branches, inwardly curved inflorescence axis, secund, four-ranked spikes with two flowerless bracts and two flowered bracts, lanceolate bracteoles with scarios margins, and superposed anther lobes with the lower one spurred. The new variety differs in its larger size, pubescent stems, ciliate leaf margin, elliptic-lanceolate bracts, and the compound, verrucose testa of the seed.

Key words: Acanthaceae, India, IUCN Red List, *Rungia*, Western Ghats.

The genus *Rungia* Nees (Acanthaceae) is represented by about 50 species in the tropics (Mabberley, 1997). In India it is represented by 13 species (Santapau & Henry, 1973), of which four species are endemic to the Western Ghats. *Rungia linifolia* Nees is endemic to the northern and central Western Ghats and is considered rare and threatened (Ahmedullah & Nayar, 1986). During the floristic study of endemic Acanthaceae from the northern and central Western Ghats, an interesting specimen of *R. linifolia* was collected from Kottigehara in Charmadi Ghat, Karnataka State. Critical examination of the collected specimen in comparison with specimens in various herbaria shows that *R. linifolia* consists of two distinct entities. Hence, the collection described here represents a new variety of *R. linifolia*.

1. *Rungia linifolia* Nees, Pl. Asiat. Rar. (Wallich), vol. 3: 110. 1832. TYPE: India. s. loc., s.d., B. Heyne 2447 (holotype, CAL).

Small herb; stem slender, erect, 4–18 cm, obtusely quadrangular, scabrous, filiform. Leaves with the petioles 1–2 mm; lamina elliptic-lanceolate, 4–20 × 1–8 mm, apex acute, margins sparsely ciliate, coriaceous, glabrous or minutely scabrid; secondary veins in 2 to 4 pairs. Inflorescences as spikes, 0.5–5 cm, filiform, curved inward; bracts ovate-elliptic, ca.

3.5 mm, apex mucronate-cuspidate, margins scarios, ciliate, glandular-pubescent externally, sparsely glandular-pubescent internally; floral bract with apex short, mucronate-cuspidate; bracteoles 2 per flower, lanceolate, ca. 3.5 mm, apex acuminate, margins narrowly scarios, ciliate. Flowers with the corolla 5–7 mm, pale purplish white with transverse purple stripes on lower lip; ovary oblong-elliptic, sparsely pubescent. Capsule elliptic-obovate, 2–3 × ca. 1 mm, tetragonous; seeds 4 per capsule, orbicular-oblong, ca. 1 × 1 mm, light brown, seed testa verrucose.

Specimens examined. INDIA. **Karnataka:** Uttara Kannada Distr., Vincholi riverbanks, *W. A. Talbot 937* (BSI); Gersoppa Falls, *Hall & McCann 34142* (BLAT); Jog Falls, *H. Santapau 18531* (BLAT), *G. S. Puri 2070* (BSI); Gund Range, Dandeli, *K. R. Keshavamurthy & S. B. Mohanan KFP6043* (JCB), *KFP6048* (JCB); Dandeli–Gund Rd., *K. P. Sreenath & S. R. Ramesh KFP10831* (JCB); betw. Ulvi & Dandeli near Kaner, *M. E. Mascarenhas & M. K. Janarthanam 381* (Goa Univ. Herb.).

1a. *Rungia linifolia* var. *linifolia*.

1b. *Rungia linifolia* var. *saldanhae* Mascar. & Janarth., var. nov. TYPE: India. Karnataka: Chikmagalur Distr., Kottigehara, 21 Feb. 2006, *M. E. Mascarenhas & M. K. Janarthanam 205* (holotype, CAL; isotypes, BSI, MO). Figure 1.

Haec varietas a varietate typica statura majore, caulibus pubescentibus, foliis margine ciliatis, bracteis elliptico-lanceolatis apice acuminato et testa composita differt.

Herb; stems slender, erect, to 30 cm, quadrangular, pubescent, branches dichotomous, filiform. Leaves opposite; petioles 5–7 mm, obscure due to decurrent leaf bases; lamina elliptic to linear-lanceolate, 2.5–4.5 × 0.5–1 cm, tapering at both ends, apex acuminate, margin entire, slightly revolute, ciliate, membranous, pubescent, more so on nerves on abaxial surface, cystoliths on abaxial surface; principal veins prominent, raised on both sides, with secondary veins in 3 to 5 pairs. Inflorescences as axillary or terminal spikes, 1.5–2.5 cm, secund, 4-ranked; peduncles to 4.5 cm, filiform, curved inward, glandular-pubescent; bracts at the base of inflorescence axis reduced, similar to

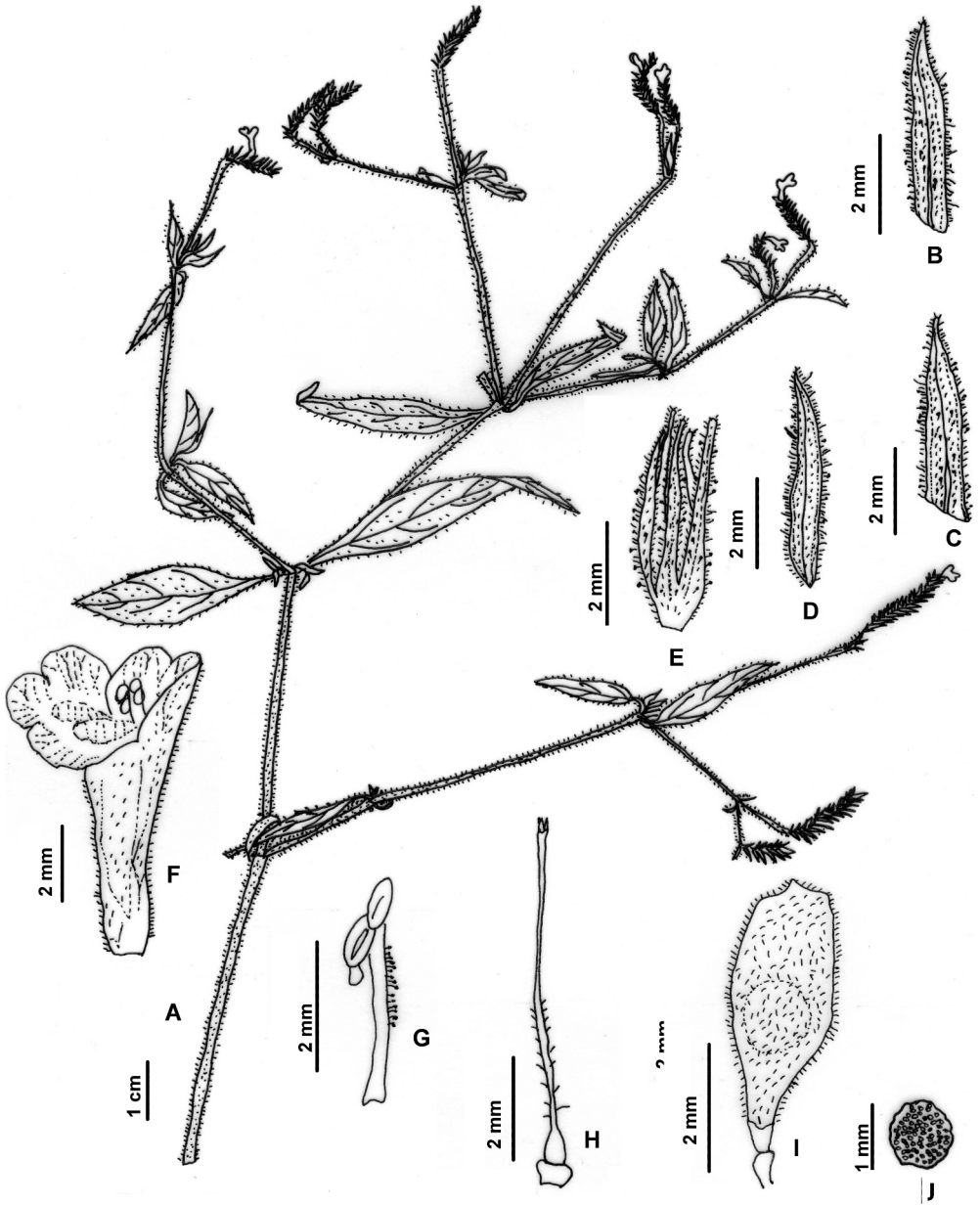


Figure 1. *Rungia linifolia* var. *saldanhae* Mascar. & Janarth. —A. Habit. —B. Sterile bract. —C. Floral bract. —D. Bracteole. —E. Calyx. —F. Corolla. —G. Stamen. —H. Gynoecium. —I. Capsule. —J. Seed. Drawn from the holotype *M. E. Mascarenhas & M. K. Janarthanam* 205 (CAL).

leaves; bracts elliptic-lanceolate, ca. 5 mm, apex acuminate, margin entire, scarios, ciliate, glandular-pubescent externally, sparsely glandular-pubescent internally, bract midrib prominent, the floral and sterile bracts similar; bracteoles 2 per flower, lanceolate, ca. 3 mm, apex acuminate, margin scarios, ciliate, glandular-pubescent externally, glabrous or nearly so internally, bracteole midrib prominent,

pubescent. Flowers with the calyx ca. 3.5 mm, divided almost to the base, segments unequal, linear-lanceolate, glandular-pubescent externally; corolla ca. 9 mm, pinkish white with pink stripes on lower lip, distinctly 2-lipped, pubescent externally, sparsely hairy internally; tube ca. 4 mm, cylindrical; upper portion ca. 5 mm, ventricose, distinctly bi-lipped; upper lip 2-lobed, lower lip 3-lobed, lobes obtuse, the middle one larger;

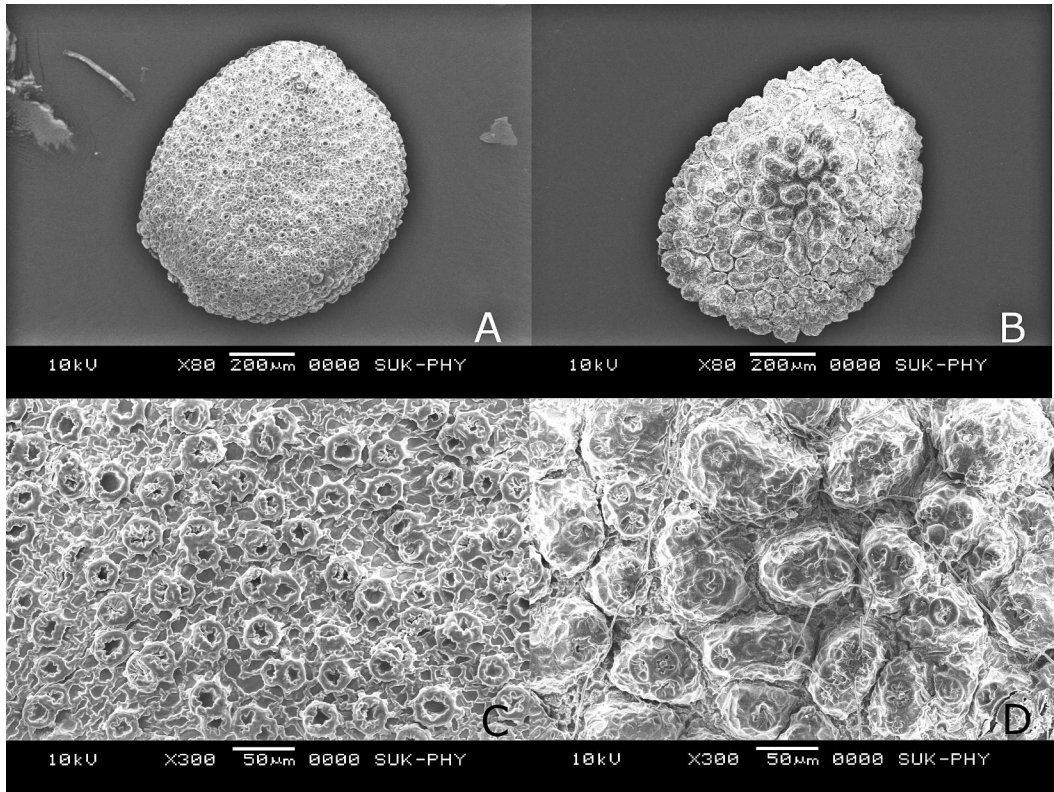


Figure 2. SEM images of *Rungia linifolia* seeds. A, C. *Rungia linifolia* var. *linifolia* (M. E. Mascarenhas & M. K. Janarthanam 381, Goa Univ. Herb.). B, D. *Rungia linifolia* var. *saldanhae* (M. E. Mascarenhas & M. K. Janarthanam 205, CAL). —A, B. Entire seeds. —C, D. Magnified view.

stamens 2; filaments flattened, ca. 2.5 mm, glandular on outer margins at distal half; anthers bitheous; anther lobes ca. 0.75 mm, oblong, superposed, with a spur at the base of the lower anther lobe; disc cupular; ovary ovoid; ovules 4; style sparsely pubescent at base; stigma bifid. Capsule obovate, 3.5–4.5 mm, stipitate, apex mucronulate, pubescent all over; seeds 4 per capsule, orbicular-oblong, ca. 1×1 mm, brown, seed testa compound verrucose.

Note. Morphological measurements were based on material preserved in formalin–acetic acid–alcohol (FAA) as well as from herbarium collections.

Distribution and habitat. *Rungia linifolia* var. *saldanhae* has been collected from Chikmagalur and Hassan districts in Karnataka State. The new variety was found growing in a small patch along the roadside in shaded and moist conditions between the communities of Kottigehara and Jenukallu, a locality in the upper portion of the Western Ghats. Earlier collections of *R. linifolia* var. *saldanhae* considered as paratypes here were reported to be

undergrowth along forest paths and streams of moist deciduous forests. In contrast, the typical variety occurs in dried riverbeds among rock crevices and in exposed conditions.

IUCN Red List category. The conservation status of *Rungia linifolia* var. *saldanhae* is assessed as Endangered (EN B2ab[iii,iv]) according to IUCN Red List criteria (2001) because its area of occupancy is estimated to be less than 500 square kilometers and it is known to exist at no more than five localities. The authors were unable to locate any populations in previously reported localities for the paratypes, thus indicating the taxon's decline in distributional area and number of locations. The present type locality is projected as very fragile, as any road-widening activity will threaten its habitat and further endanger its existence.

Etymology. The epithet of the new variety honors the late Fr. Cecil J. Saldanha, S.J., who has contributed immensely to the taxonomy of this region.

Discussion. The new variety differs from the typical variety of *Rungia linifolia* by its larger size (to 30 cm high vs. 4–18 cm in var. *linifolia*); pubescent stems (vs. scabrous); leaves that are longer (25–45 × 5–10 mm vs. 4–20 × 1–8 mm), membranous (vs. coriaceous), with ciliate margins and an acuminate apex (vs. only sparsely ciliate margins and an acute apex); bracts that are elliptic-lanceolate (vs. ovate-elliptic), with an acuminate apex (vs. mucronate-cuspidate); and the compound verrucose seed testa (vs. simple) (Fig. 2). Because the differences in plant size, stem pubescence, and leaf morphology could be attributed to differences between their habitats, the new taxon is described here as a variety rather than as a species or subspecies.

Collections of *Rungia linifolia* were seen only from the district of Uttara Kannada in Karnataka State. The new variety has been documented from the districts of Chikmagalur and Hassan. Further investigation in the field is needed to see whether the two varieties are allopatrically distributed, with no distributional overlap.

Paratypes. INDIA. **Karnataka:** Chikmagalur Distr., Balalayaranadurga, 27 Feb. 1963, *R. S. Raghavan 86993* (BSI); Hassan Distr., Devalkere, 24 Jan. 1969, *C. J. Saldanha 12436*

(JCB); stream betw. Devalkere & Devarunde, 24 Feb. 1970, *C. J. Saldanha 16461* (JCB); stream before Devarunde, 23 Jan. 1971, *T. P. Ramamoorthy HFP 1369* (JCB).

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Literature Cited

- Ahmedullah, M. & M. P. Nayar. 1986. Endemic Plants of the Indian Region, Vol. 1. Botanical Survey of India, Calcutta.
- IUCN. 2001. IUCN Red List Categories and Criteria, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Mabberley, D. J. 1997. The Plant Book: A Portable Dictionary of the Vascular Plants, 2nd ed. Cambridge University Press, Cambridge.
- Santapau, H. & A. N. Henry. 1973. A Dictionary of the Flowering Plants of India. Council of Scientific and Industrial Research, New Delhi.