

## **MEMECYLON NERVOSUM (MELASTOMATACEAE), A NEW SPECIES FROM SOUTH INDIA**

R. G. VADHYAR, J. H. F. BENJAMIN & K. A. SUJANA

*Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana, a new species of Melastomataceae from the Kanyakumari Wildlife Sanctuary, Western Ghats, India, is described and illustrated. It is compared with the closely allied *Memecylon heyneanum* Benth. and *Memecylon jambosioides* Wight.

*Keywords.* India, Kanyakumari Wildlife Sanctuary, Melastomataceae, *Memecylon nervosum*.

### INTRODUCTION

The genus *Memecylon* comprises about 350 species and is distributed in the Old World tropics (Renner *et al.*, 2007–). About 54 *Memecylon* species from India have been recorded (Das Das *et al.*, 2018; Radh & Nampy, 2019). In India, the Western Ghats is the centre of diversity of this group, with 21 endemic species (Singh *et al.*, 2015; Prabhu & Murugan, 2017; Sivu *et al.*, 2018; Radh & Nampy, 2019). Kanyakumari Wildlife Sanctuary in Tamil Nadu, along with the adjacent areas of Kalakkad Mundanthurai Tiger Reserve (also in Tamil Nadu) and Neyyar Wildlife Sanctuary (in Kerala), constitute the southernmost tip of the Western Ghats. Recent floristic surveys in this region led to the collection of a *Memecylon* species that is morphologically different from species hitherto described (Clarke, 1879; Gamble, 1915; Bremer, 1979). After detailed study, the species is described and illustrated here as new.

### SPECIES DESCRIPTION

***Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana, sp. nov.**

Closely allied to *Memecylon jambosioides* Wight but differing substantially in floral and fruiting characters, having a purplish pink hypanthium (versus white in *M. jambosioides*), pinkish violet staminal filament (versus white), blue anther with light-brown connective (versus yellow with white), 5 mm long purplish style (versus 1.5 mm long whitish) and mauve to purplish red to blue submature fruit (versus yellow). – Type: India, Tamil Nadu, Kanyakumari district, Kanyakumari Wildlife Sanctuary, Panagudi forest section, beyond Sengamal Estate, 8°21.936'N, 77°30.028'E, 785 m elevation, 1 ii 2019, *Sujana K. A. & Rakesh G. Vadhyar* 140760 (holo CAL, iso MH). **Figs 1–3.**

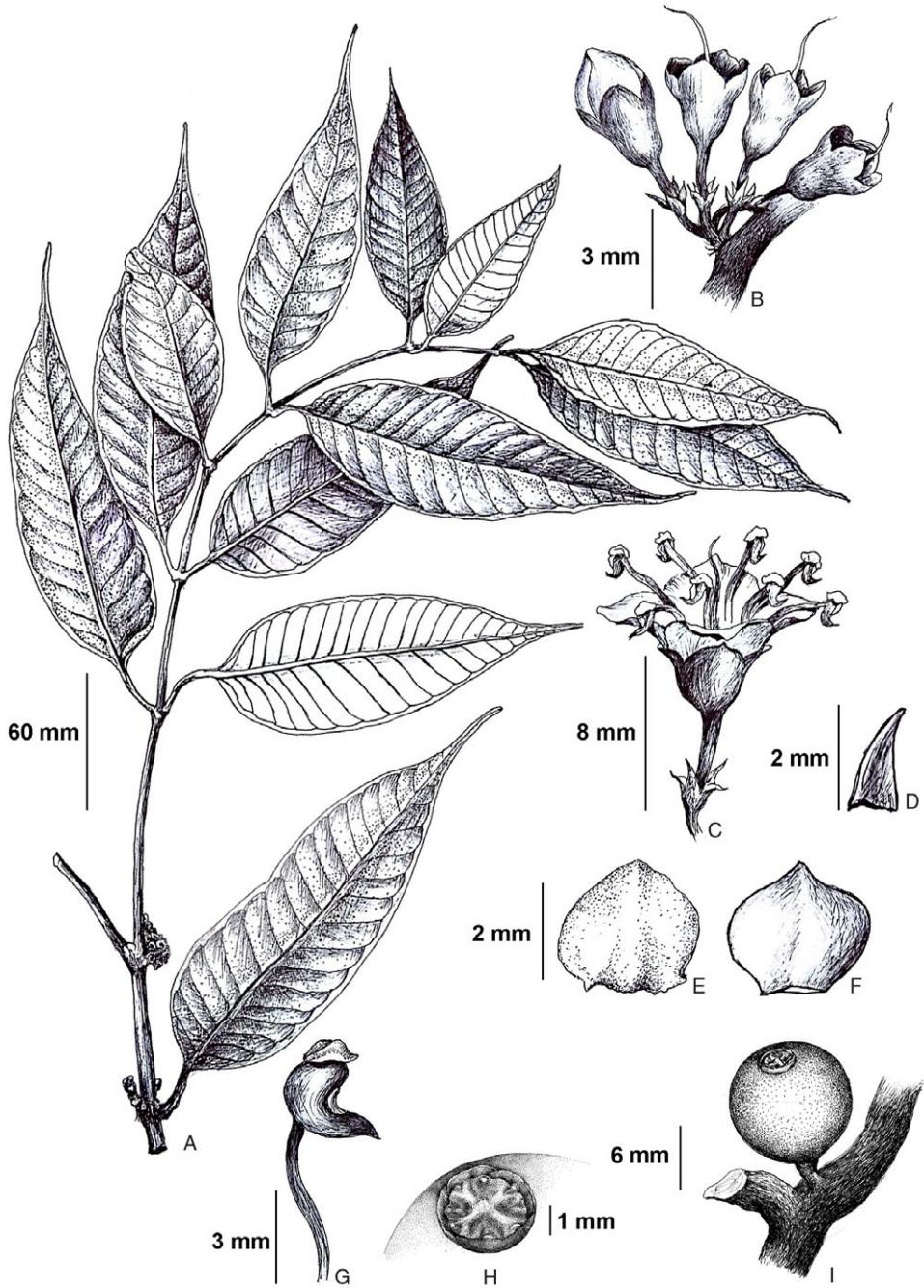


FIG. 1. *Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana, sp. nov. A, Flowering twig; B, inflorescence; C, flower; D, bracteole; E, petal (dorsal view); F, petal (ventral view); G, stamen; H, fruit (apical view showing epigynous chamber); I, fruit.



FIG. 2. *Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana, sp. nov. A, Plants in their natural habitat; B, leaf (adaxial view); C, leaf (abaxial view); D, inflorescence; E, flowers; F–J, fruit at different stages of development.

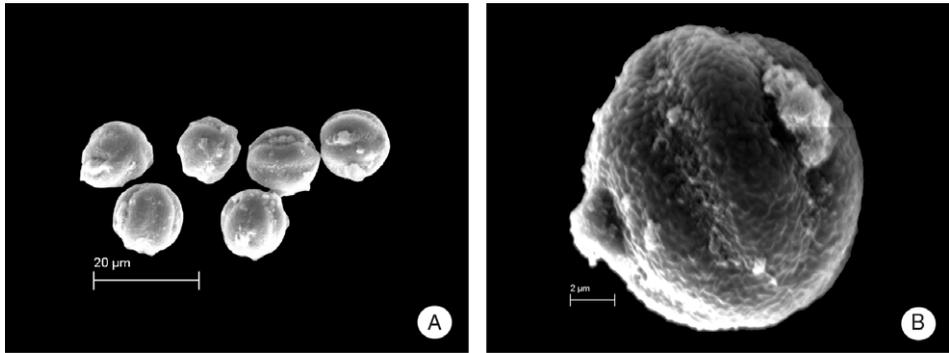


FIG. 3. *Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana. A and B, Scanning electron microscopy images of pollen grains.

Shrub, 1.5–2 m high; stem terete, fissured, light brown; ultimate branchlets often shallowly grooved or compressed, spirally twisted, dark mauve; internodes 3–9 cm long. *Leaves* opposite. *Petioles* subterete, subcanaliculate, 0.6–1.2 cm long, glabrous, thickened, dark purple. *Lamina* elliptic-lanceolate, 12.2–21.4 × 3.5–5.2 cm, base cuneate, apex acuminate, margin entire, often thickened, slightly revolute, coriaceous, glabrous, olive green above, olive yellow beneath on drying; foliar sclereids elongated ophiuroid, traversing the leaf in all directions; secondary veins conspicuous, 14–24 pairs, originating at a c.50° angle from midrib, spaced at c.5-mm intervals, lateral and intramarginal veins loop-forming, prominent above and below, intramarginal veins c.3 mm from margin. *Inflorescence* on leafless older nodes or rarely in leafy axils, umbel-like, 2- to 10-flowered; peduncle c.0.5 mm long; bracts numerous around the peduncle, filiform, c.2 mm long; bracteoles 4 in a rosette, deltoid, c.0.4 mm long, apex hyaline, puberulent, purple, persistent. *Flower buds* obovate, corolla dome-shaped, shortly acute, tip twisted, pale blue towards apex, dark bluish violet at the base. *Flowers* regular, bisexual, c.7 mm across; pedicels terete, 1–2 mm long, puberulent, dark violet; hypantho-calyx campanulate, c.3 × 3.2 mm, puberulous, pale purple outside, dark pink inside, disc rays prominent; calyx 4-lobed, margins entire, slightly undulate, widened at mouth after anthesis; petals 4, broadly ovate, 3–4 × 2–3 mm, apex subacute, margin hyaline, thick, dark purple, pale after anthesis, reflexed at maturity. *Stamens* 8, filaments subterete, flattened near base, c.4 mm long, pale violet; anthers J-shaped, c.1 × 0.5 mm long, blue; connective with centrally placed gland, c.0.5 mm, pale brown; pollen sacs anterior, very close to each other, white; pollen grains prolate-spheroidal, 3-zonocolporate with intercolpar cavities or pseudocolpi in between, exine ornamentation microstriato-reticulate. *Ovary* inferior, subglobose, c.1.5 mm in diameter, 4-locular, ovules 4, placentation axile; style columnar, c.5 mm long, purple; stigma pointed. *Fruit* a berry, globose, 12–16 mm in diameter, mauve to purplish red to blue, black at maturity, 1–6 at each node, on 2–3 mm long pedicels; calycinal crown distinct, c.1 mm long, the margin shallowly 4-dentate; epigynous chamber deep, c.3 mm in diameter, partitions cruciform, marked only by the filament scars; pericarp thick, rough. *Seed* solitary, globose, 7–8 mm, glossy brown.

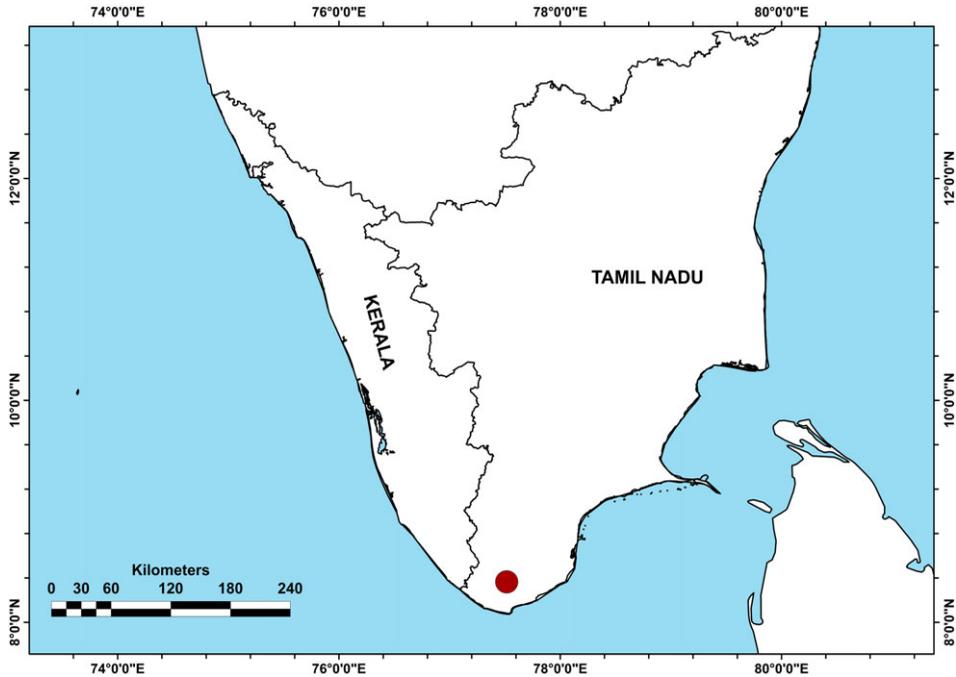


FIG. 4. Distribution of *Memecylon nervosum* Vadhyar, J.H.F.Benj. & Sujana (red circle) in Kanyakumari Wildlife Sanctuary, Tamil Nadu, India.

*Additional specimens examined.* INDIA. Tamil Nadu, Kanyakumari district, Kanyakumari Wildlife Sanctuary, Panagudi forest section, beyond Sengamal Estate, 08°21.906'N, 077°30.166'E, 751 m elevation, 21 ix 2018, *J. H. Franklin Benjamin & Rakesh G. Vadhyar* 140665 (MH); 775 m elevation, 9 ii 1972, *B. D. Sharma* 40065 (MH).

*Distribution.* Endemic to the type locality at the Panagudi forest section of Kanyakumari Wildlife Sanctuary, Tamil Nadu, India.

*Habitat.* In tropical moist evergreen forests between rocky boulders, in association with *Calamus travancoricus* Bedd., *Pavetta zeylanica* (Hook.f.) Gamble, *Sarcostigma kleinii* Wight & Arn. and *Xanthophyllum arnottianum* Wight at an elevation of c.700–900 m.

*Phenology.* Flowering and fruiting from September to February.

*Etymology.* The specific epithet alludes to the presence of prominently raised lateral and intramarginal veins on the lower surface of the lamina.

*Conservation status.* *Memecylon nervosum* is assigned a status of Critically Endangered (CR B1ab(ii,iii)+B2ab(i,ii)), according to the criteria in IUCN (2012). The species is found in tropical moist evergreen forests at the Panagudi forest section of Kanyakumari Wildlife Sanctuary as a single population across an area of 1 km<sup>2</sup> (Fig. 4). More than 10 subpopulations of the new species have been located along the banks of a perennial

rivulet, with each subpopulation having 10–25 mature individuals distributed in an aggregate pattern.

Flowering and fruit set, natural regeneration and seedling recruitment for this species have been found to be fairly good at the type locality. B. D. Sharma collected this plant from the same locality in 1972 and noted it to be rare. Alteration of its natural habitat is the main threat observed for this species. A detailed study of its geographical range, population and reproductive biology will be necessary to understand the factors limiting its distribution.

*Taxonomic notes.* *Memecylon nervosum* may be confused with *M. jambosoides* when sterile but is clearly distinguished by the floral and fruiting characters listed in the diagnosis above. More detailed distinguishing characters are provided in the Table. Most taxonomic treatments have considered *Memecylon jambosoides* to be a synonym of *M. heyneanum* Benth. (Clarke, 1879; Brandis, 1906; Nair & Henry, 1983; Sasidharan, 2004). The nomenclatural status of *Memecylon jambosoides* was discussed by Das Das *et al.* (2018), who reinstated the name with a proper circumscription. During the present study, the authors scrutinised specimens of *Memecylon heyneanum* and *M. jambosoides* collected from Kanyakumari district. It was found that a gathering of specimens with fruits collected by B. D. Sharma (40065, MH) from the type locality of *Memecylon nervosum* was kept under *M. heyneanum*. Das Das *et al.* (2018) mistakenly determined this material as *Memecylon jambosoides*, but careful examination and comparison with live collections and herbarium specimens resulted in the recognition of the collection of B. D. Sharma as the new species, *M. nervosum*. A key to the species of *Memecylon* occurring in India and Sri Lanka and having conspicuous veins is provided below.

KEY TO THE INDIAN AND SRI LANKAN SPECIES OF *MEMECYLON*  
WITH CONSPICUOUS VEINS

- 1a. Inflorescence pedunculate. Flowers pedicellate \_\_\_\_\_ 2  
 1b. Inflorescence epedunculate. Flowers sessile \_\_\_\_\_ 3
- 2a. Inflorescence always terminal \_\_\_\_\_ *M. ponmudianum*  
 2b. Inflorescence axillary or on bare nodes \_\_\_\_\_ 4
- 3a. Branchlets terete to subquadrangular. Leaves with 6–10 pairs of veins. Intramarginal veins faint. Disc rays faint. Anthers white. Filaments purple \_\_\_\_\_ *M. lawsonii*  
 3b. Branchlets subterete. Leaves with 18–20 pairs of veins. Intramarginal veins prominent. Disc rays prominent. Anthers yellow. Filaments white \_\_\_\_\_ *M. clarkeanum*
- 4a. Branchlets distinctly 4-angular, winged on the angles. Peduncles up to 12 cm \_\_\_\_\_ *M. subramanii*  
 4b. Branchlets terete to subterete, never winged. Peduncles up to 1 cm \_\_\_\_\_ 5
- 5a. Leaves sessile, base cordate and semiamplexicaule \_\_\_\_\_ 6  
 5b. Leaves petiolate, base rounded, cuneate, acute \_\_\_\_\_ 7

TABLE. Comparison of major diagnostic morphological characters of *Memecylon nervosum*, *M. heyneanum* and *M. jambosoides*

Character	<i>M. nervosum</i>	<i>M. heyneanum</i>	<i>M. jambosoides</i>
Leaves	Elliptic-lanceolate, 12.2–21.4 × 3.5–5.2 cm, apex acuminate, base cuneate, secondary veins 14–24 pairs, c.5 mm apart, very prominent on lower surface, subprominent on upper surface	Oblong-lanceolate to narrowly ovate-lanceolate, 7–13.2(17) × 1.6–3.8(5) cm, apex obtusely acute, base rounded to slightly cordate, secondary veins 10–12 pairs, c.2 mm apart, faintly visible on both surface	Broadly elliptic to lanceolate, 7–16(21.7) × 3–5.5 cm, apex obtuse to acuminate, base round or cuneate, secondary veins 10–12 pairs, c.10 mm apart, visible on both surfaces
No. of flowers	2–10 at each node	17–20 at each node	1–3 at each node
Hypantho-calyx	Pale purple outside, dark pink inside, c.3 × 3.2 mm	Pink, c.1.5 × 2.5 mm	White, c.2.5 × 2.5 mm
Petals	Broadly ovate, 3–4 × 2–3 mm, dark purple, pale after anthesis	Broadly obovate, c.1.5 × 2 mm, blue	Ovate-deltoid, 2–3 × 2–2.5 mm, purple on the ventral side, slightly paler on the dorsal side
Staminal filament	Subterete, c.4 mm long, pale violet	Terete, c.2.5 mm long, blue	Terete, c.2 mm long, white
Anther	J-shaped, blue, connective with centrally placed gland	C-shaped, white, connective with centrally placed gland	J-shaped, white, connective with centrally placed gland
Style	c.5 mm long, purple	c.4 mm long, pinkish blue	c.1.5 mm long, white
Fruit	12 × 10 mm, mauve to blue, 1–6 per node	5 × 4 mm, yellowish red to red, 2–12 per node	15 × 12 mm, greenish yellow, 1 or 2 per node



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