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Litsea megamalayana (Lauraceae), a new species from the southern Western Ghats of India

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ABSTRACT. *Litsea megamalayana* Karupp., V.Ravich. & Bharath (Lauraceae), a new species from the Megamalai Wildlife Sanctuary of the southern Western Ghats, is described and illustrated. A detailed description, illustration, colour photographs and a table of comparisons to an allied species are provided here for easy identification and further study.

Keywords. Megamalai, new species, Tamil Nadu

Introduction

The genus *Litsea* Lam., established by Lamarck (1792), is one of the largest genera in the family Lauraceae, comprising about 391 species of dioecious trees and shrubs mostly in tropical Asia, with a few species found in the Pacific islands, Australia, and North and Central America (POWO, 2022). Hooker (1886), in his *Flora of British India*, reported 65 species, including 17 new species, of which 39 species are within the present Indian state borders. Gamble (1925) mentioned 19 species in his *Flora of the Presidency of Madras*. Currently, approximately 48 taxa are recognised in India, mainly distributed in the Western Ghats and eastern Himalayas (Robi, 2014; Robi et al., 2015; Robi & Udayan, 2021a). In recent years, *Litsea gorayana* Udayan & Robi (Udayan & Robi, 2017), *Litsea indoverticillata* Robi & Udayan (Robi et al., 2017), *Litsea anamalayana* Robi & Udayan (Robi & Udayan, 2021a) and *Litsea manilaliana* Robi & Udayan (Robi & Udayan, 2021b) have been described from the Western Ghats of India. It is now estimated that there are about 26 species in the Western Ghats, of which 17 are endemic to the southern Western Ghats (Nayar et al., 2014; Robi et al., 2015).

Materials and methods

During a floristic exploration of Megamalai Wildlife Sanctuary (now in Megamalai-Srivilliputhur Tiger Reserve), southern Western Ghats of Tamil Nadu, India, the authors collected some interesting specimens of the genus *Litsea* from the evergreen

forest areas and from roadsides above 1500 m elevation. After a critical examination of the collected specimens and the pertinent literature (Hooker, 1886; Gamble, 1925; Robi, 2014; Robi et al., 2015, Robi & Udayan, 2021a, 2021b; BSI, 2022) and a comparison to the type specimens available at the relevant herbaria (CAL, CALI, E, GDC, K, L, LINN, MH and P), it was found that the newly collected material is of a hitherto undescribed species. It is described here as *Litsea megamalayana* Karupp., V.Ravich. & Bharath, sp. nov.

Taxonomic treatment

Litsea megamalayana Karupp., V.Ravich. & Bharath, **sp. nov.**
Similar to *Litsea udayanii* Robi in its racemose inflorescence, 4 female flowers in an umbel and 12 staminodes in the female flowers; but it differs by being fulvous hairy on almost all parts of the plant (vs adpressed sericeous or glabrous in *Litsea udayanii*), having stellate hairs on the branchlets and leaves abaxially (vs no stellate hairs), being hairy on the outer staminodes (vs glabrous), hairy on the outer side of the inner staminodes (vs glabrous), having a hairy ovary base (vs. glabrous), and having fulvous hairs on the fruit pedicel and perianth cup (vs partially pubescent). The ellipsoid fruit of 2 cm long makes this species unique, along with the key character of the occasional stellate hairs on branchlets. – TYPE: India, Tamil Nadu, Megamalai Wildlife Sanctuary, on the way to High Wavys, 11 September 2022, *Karuppusamy & Bharath 2641* (holotype SGH; isotype MH). (Fig. 1, 2; Table 1)

Small tree, 5–8 m tall; bark brown, branchlets brown, densely fulvous with sparse stellate hairs, robust, lenticellate. ***Leaves*** simple, alternate, exstipulate; petiole 1–1.5 cm long, greenish yellow, robust, fulvous hairy, convex below, flat above; lamina ovate to oblong, 3–10 × 3–4.5 cm, base attenuate, apex obtuse, margin entire, recurved, glabrous adaxially, hairy abaxially, also occasionally stellate hairy, coriaceous; midrib flat above, prominent beneath, fulvous hairy on both sides, lateral veins 5–8, prominent abaxially. ***Inflorescence*** of many umbels in a short raceme, to 2.5 cm long. ***Flowers*** 4–6 in a cluster; peduncle 1–1.3 cm long, hairy; pedicel 5–7 mm long; bracts 4–5, broadly ovate, abaxial side densely silky hairy, adaxial side glabrous, margin entire, ciliate, c. 3.5 × 3 mm, apex rounded; *male flowers* 5 or 6 in an umbel, 3–4 mm long, nearly 5 mm long on opening; tepals 6–8, elliptic, c. 1.8 × 1.2 mm, apex acute or obtuse, entire, abaxial side silky hairy, adaxial side partially hairy; *stamens* 12–16, appearing to be arranged in two whorls, base densely silky hairy, outer stamens 3–3.2 mm long, partially hairy, anthers 4-celled, c. 0.5 mm long; inner stamens 1.5–2 mm long, with glands c. 0.7 mm long, bean-shaped; *female flowers* 4 in each umbel, 2–3 mm long, nearly 4 mm long on opening; tepals 6, c. 1.5 × 1 mm, elliptic, entire, abaxial side silky hairy, adaxial side glabrous, apex acute or obtuse, narrowed at base; *staminodes* 12, appearing to be arranged in two whorls, outer staminodes 6, linear, cream-white, hairy, arranged between inner staminodes and tepals; inner whorl basally connate with tepals, 2 glandular, c. 1 mm long, hairy abaxially, glabrous adaxially,

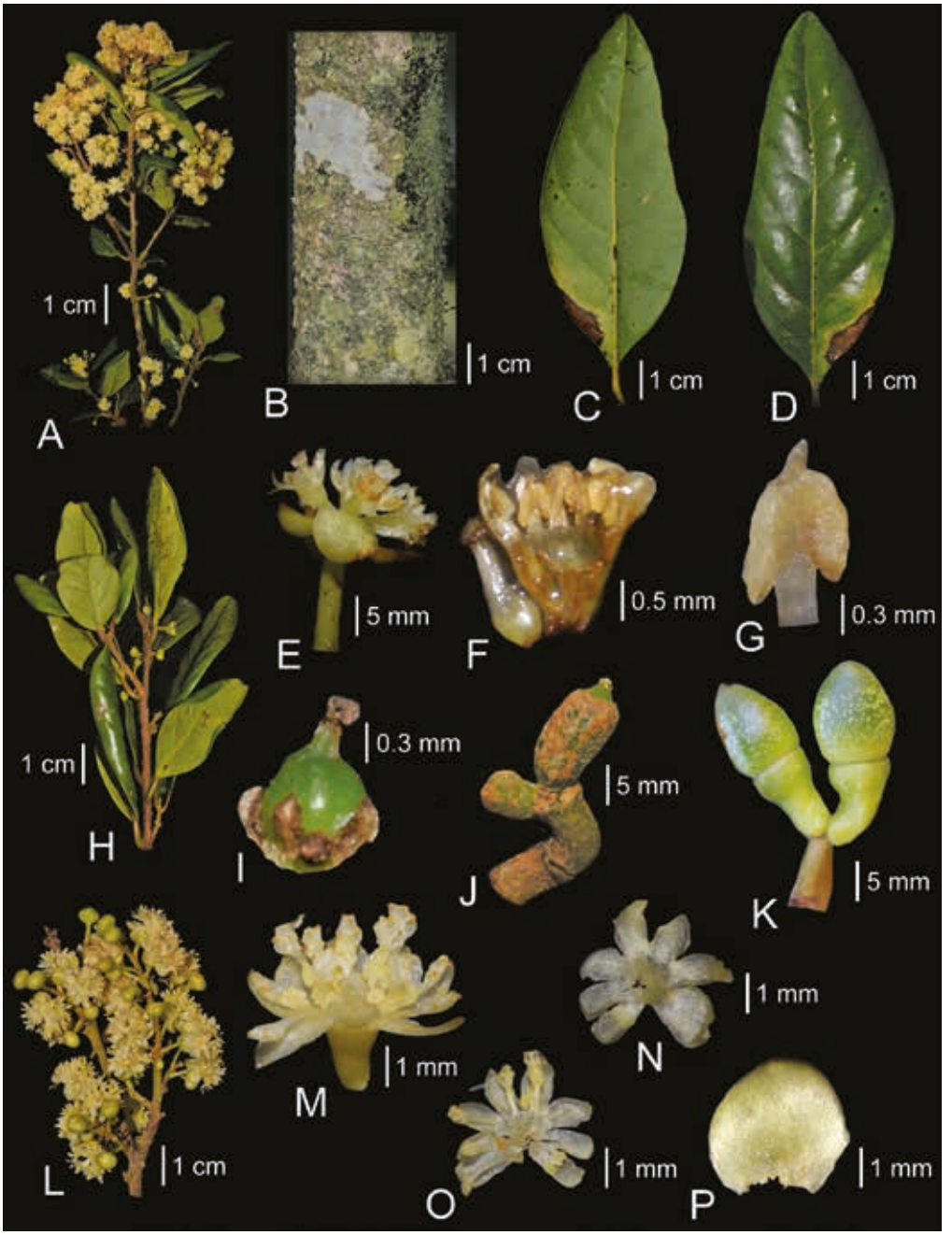

Fig. 1. *Litsea megamalayana* Karupp., V.Ravich. & Bharath. **A.** Male flowering twig. **B.** Bark. **C.** Leaf abaxial view. **D.** Leaf adaxial view. **E–K.** Female plant. **E.** Umbel. **F.** Pistil and staminodes. **G.** Glandular staminode. **H.** Female flowering twig. **I.** Ovary. **J.** Immature fruit. **K.** Mature fruit. **L–P.** Male plant. **L.** Inflorescence. **M.** Flower. **N.** Tepals, abaxial view. **O.** Tepals, adaxial view. **P.** Bract, abaxial view. (Photos: P. Bharath Simha Yadav)

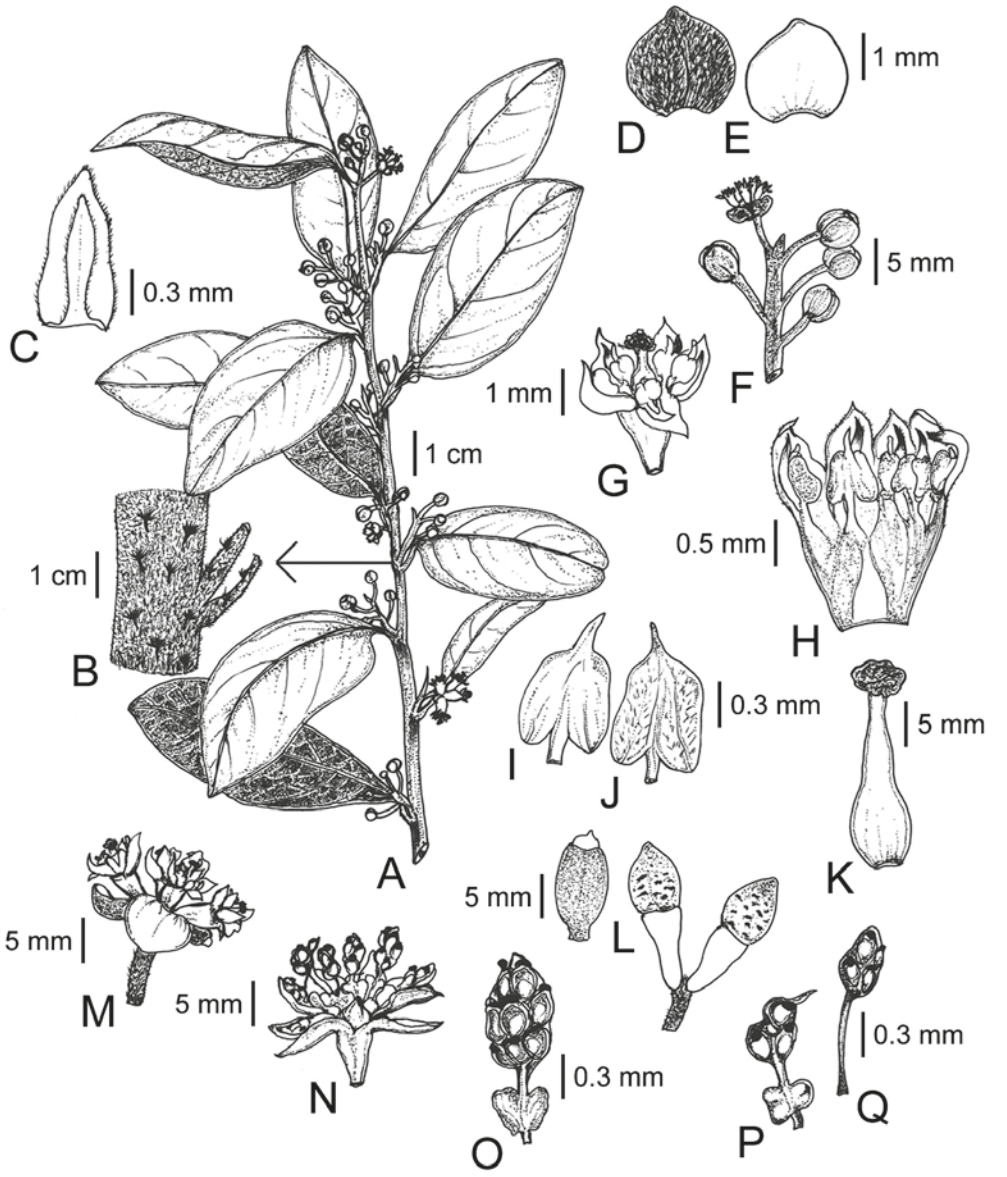

Fig. 2. *Litsea megamalayana* Karupp., V.Ravich. & Bharath. **A.** Female flowering twig. **B.** Nodal portion enlarged. **C.** Tepal with staminode. **D.** Bract, abaxial view. **E.** Bract, adaxial view. **F–L.** Female plant. **F.** Inflorescence. **G.** Flower. **H.** Staminodes. **I.** Glandular staminode, adaxial view. **J.** Glandular staminode, abaxial view. **K.** Pistil. **L.** Fruit. **M–Q.** Male plant. **M.** Umbel. **N.** Flower. **O, P.** Stamens with glands at base. **Q.** Stamen. Drawn by S. Karuppusamy.

Table 1. Comparison between *Litsea megamalayana* Karupp., V.Ravich. & Bharath and *Litsea udayanii* Robi.

Characters	***Litsea megamalayana***	***Litsea udayanii***
Branchlets	Brown, fulvous or stellate hairy	Purple, adpressed sericeous or glabrous
Leaves	3–10 × 3–4.5 cm, fulvous hairy, apex obtuse	6–11 × 2–4 cm, apex obtuse, acute or shortly acuminate
Petiole	1–1.5 cm long, greenish yellow, fulvous hairy	0.5–1 cm long, purplish, glabrous
Secondary veins	5–8 pairs	6–10 pairs
Peduncle	1–1.3 cm long, hairy	c. 5 mm long, puberulous
Male flowers	5 or 6 in each umbel	Not seen
Staminodes	12, outer 6 hairy, inner 6 glabrous inside and hairy outside	12, glabrous
Stamens	12–16	Not seen
Fruit	c. 2 cm long	c. 1 cm long
Fruiting pedicel	5–6 mm long	c. 3 mm long
Perianth cup	Hairy throughout	Partially pubescent
Ovary	c. 0.8 mm long	c. 1 mm long

straight, stout, white in colour. *Ovary* c. 0.8 mm long, hairy at base, style c. 1 mm long, stigma unevenly capitate, dark brown, glabrous. Fruiting pedicel 5–6 mm long, brown or green, hairy. ***Fruit*** a 1-seeded berry, c. 2 cm long, ellipsoid, obtuse at apex, greenish speckled white, seated on the perianth tube, c. 0.1 cm deep; perianth cup cushion-like, enlarged in fruit, hairy, margin entire, ciliate, 1–1.2 cm long.

Distribution. So far, only known from Megamalai Wildlife Sanctuary, Theni district, Tamil Nadu, India.

Ecology. Litsea megamalayana has been found on the margins of tea plantations in association with *Acronychia pedunculata* (L.) Miq., *Actinodaphne bourdillonii* Gamble, *Aeschynanthus perrottetii* A.DC., *Bhesa indica* (Bedd.) Ding Hou,

Chrysoglossum ornatum Blume, *Hydnocarpus alpinus* Wight, *Litsea floribunda* (Blume) Gamble, *Mappia nimmoniana* (J.Graham) Byng & Stull and *Turpini amalabarica* Gamble. Flowering and fruiting from September to November.

Etymology. The specific epithet is named after its type locality Megamalai hills.

Provisional IUCN conservation assessment. Critically Endangered (CR D). Fewer than 15 mature individuals of *Litsea megamalayana*, with an extent of occurrence of 30 km^2, have been found at the type locality. Despite the fact that the habitat of this species is within the boundaries of the protected area Megamalai Wildlife Sanctuary, the proximity of the widened road, extension of tea cultivation, pesticides and other chemicals used in tea plantations, and the frequent tourist visits could pose a threat to this species in the future. According to the latest IUCN conservation status assessment guidelines (IUCN Standards and Petitions Committee, 2022), *Litsea megamalayana* can be considered Critically Endangered. Nevertheless, further observations of the species are needed for a full assessment.

Notes. In *Litsea*, the flowers are generally 3-merous, the male flowers have 9 (or 12) stamens in 3 (or 4) whorls and the female flowers have 9 (or 12) staminodes in 3 (or 4) whorls. In *Litsea megamalayana*, the male flowers are 3- or 4-merous and have 12 or 16 stamens in what appears to be two whorls but which is likely to be the result of the outer two and inner two whorls each being indistinguishable. Likewise, in the female flowers, the staminodes form a similar arrangement.

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