



## *Litsea kakkachensis* (Lauraceae) – A new species from Agasthyamalai, Western Ghats, India

R. Ganesan

Suri Sehgal Centre for Biodiversity and Conservation, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Srirampura, Jakkur Post, Bengaluru – 560 064, Karnataka, India.

E-mail: rganesan@atree.org

### Abstract

*Litsea kakkachensis* R. Ganesan, a new species of Lauraceae from Agasthyamalai hills, southern Western Ghats is described with illustration. It differs from its allied species *L. venulosa* (Meisn.) Hook.f. in number of lateral nerves, floral characters and shape of the fruit. The habitat, phenology, abundance and threat status are also discussed.

**Keywords:** Agasthyamalai, India, Lauraceae, *Litsea*, New Species, Western Ghats

*Litsea* Lam. belongs to the family Lauraceae, represented by more than 300 arboreal species (Mabberley, 2008). Of the 23 species of *Litsea* reported from Western Ghats, 13 are endemic (Ramesh & Pascal, 1997). Gamble (1925) while working for Flora of the Presidency of Madras described four new species of *Litsea*, namely, *Litsea ghatika* Saldanha, *L. lakshmaniana* Kesh.Murthy & Yogan. and *L. beei* N. Mohanan & E.S.S. Kumar, from southern India. Later, four more new species have been added to the flora of the Western Ghats.

A population of *Litsea* sp. was located in one of the forest dynamics plots established to monitor the population dynamics of forest trees in undisturbed wet evergreen forests at Kakkachi, Kalakad Mundanthurai Tiger Reserve (KMTR). Later, populations of this species were spotted in selectively logged forests in Kakkachi and Upper Kodayar. Specimens collected from these populations were critically studied and compared with other described species from India and Sri Lanka and none of them matched this species. The only closely related species described from India is *L. venulosa* (Meisn.) Hook.f., an endemic species restricted to south of Nilgiris mountains, Western Ghats. The collection is being described here as a new species. Table 1 shows the differences between the new species and *L. venulosa*. Of the all species of *Litsea* described so far from south India, only three are shrubs and the rest are small to large trees.

***Litsea kakkachensis* R. Ganesan, sp. nov. Fig. 1**

*Litsea venulosa* foliis ellipticis vel obovatis vel oblanceolatis, apice acuto ad obtuso, venis lateralibus

8 – 10-paribus, petalis staminibusque patentibus, flore masculo sine pistillodio, staminodio exteriore lineari, toro concavo pubescenti, staminodio interiore appendice lineari supra glandes bene procurrenti, fructibus ellipticis differt.

*Typus:* INDIA, **Tamil Nadu**, Tirunelveli district, Kalakad Mundanthurai Tiger Reserve, Kakkachi, ± 1200 m, 13 April 1994, R. Ganesan 353 (Holotypus, CAL; Isotypii, MH, K, ATREE).

Shrubs to small trees, to 3 m high, dioecious; branches multiple from the ground; bark smooth in young plants, covered with flaking papery layers in older ones; flakes reddish brown. Leaves alternate, obovate to oblanceolate, 3.3 – 10.7 × 1.3 – 3.4 cm, acute or cuneate at base, entire to revolute at margins, acute to obtuse at apex, glabrous above, bluish glaucous below when fresh, purplish brown on dry; lateral nerves 8 – 10 pairs, looping at margins (brochidodromous), obscure above, prominent below; petioles 5 – 13 mm long. Male umbellules: 1 to 3 per leaf axil; peduncles 12 – 23 mm long, glabrous; involucre bracts 4, cucullate, c. 4.5 × 4.8 mm, thick, 4 or 5-nerved at base, greenish; flowers 6 per umbellule, c. 5.4 mm long; pedicels c. 2.4 × 0.6 mm, thick, densely white-sericeous; tepals 6, linear-oblong to obovate, 3 – 3.7 × 1 – 1.2 mm, rounded at apex, densely gland-dotted, sparsely sericeous outside at lower half, entire to rarely distantly serrate and sericeous at margins, valvate, cream-coloured; torus concave, densely white-sericeous; rudimentary ovary absent; stamens 6, 2-whorled; outer stamens longer and slender than inner ones; outer

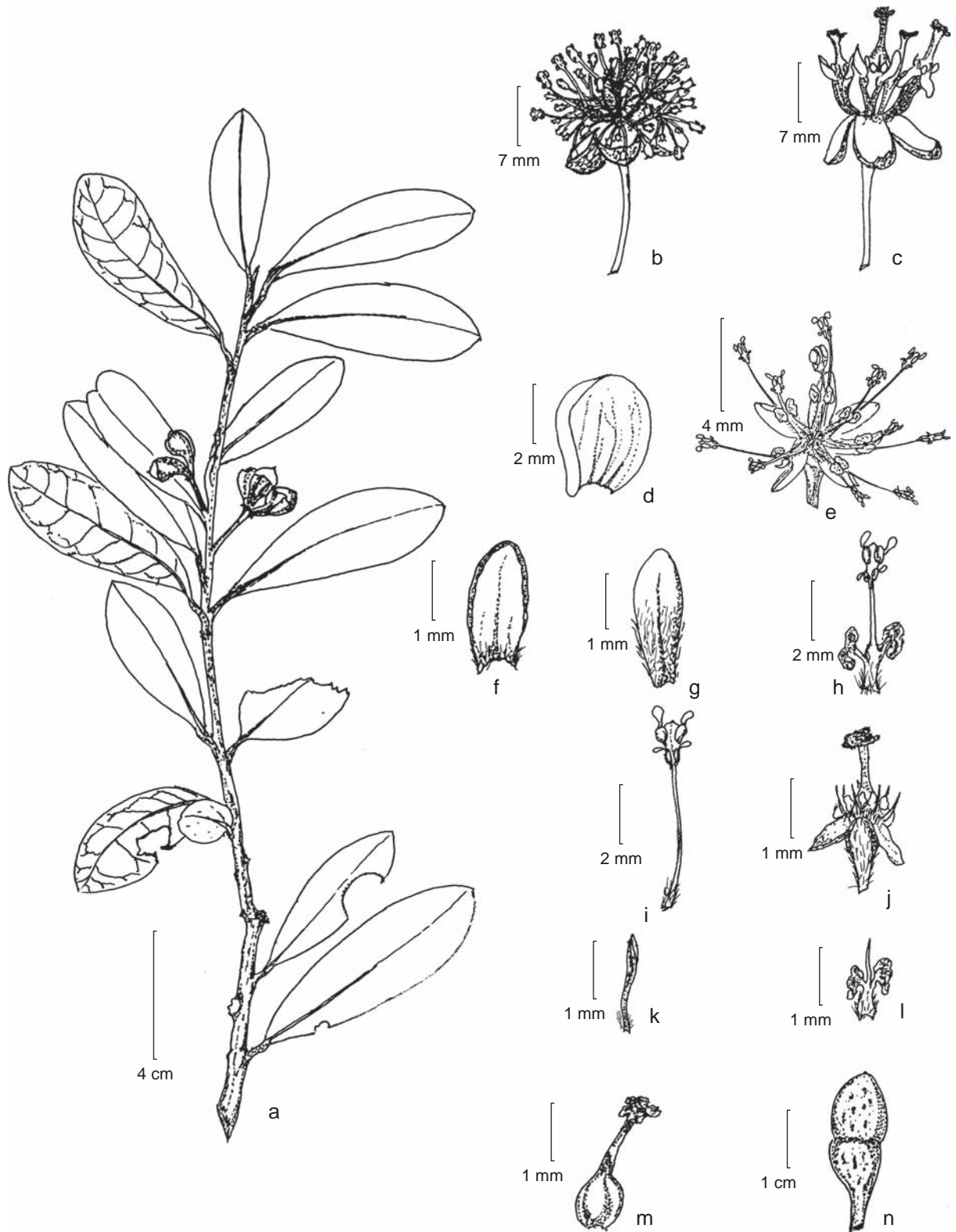


Fig. 1. *Litsea kakkachensis* R. Ganesan, sp. nov.: a. Habit (from R. Ganesan 353); b. Umbellule (male flowers); c. Umbellule (female flowers); d. Involucral bract; Male: e. Flower; f & g. Tepals; h. Inner stamen; i. Outer stamen; Female: j. Flower; k. Appendage of outer whorl in female flower; l. Appendage with glands in inner whorl of female flower; m. Pistil; n. Berry.

**Table 1.** Comparison of *Litsea kakkachensis*, sp. nov. with *L. venulosa*

Characters	<i>L. kakkachensis</i> , sp. nov.	<i>L. venulosa</i> (Meisn.) Hook.f.
Stem	Multiple at base	Single at base
Bark	Flakes into thin papery peelings, rusty brown	Smooth
Leaf	Obovate, oblanceolate, acute to cuneate at base, acute to obtuse at apex, chartaceous	Linear-oblong, acute at base, acute to caudate-acuminate at apex, membranous
Secondary veins	8 – 10 pairs	4 – 6 pairs
Lower surface of leaf	Bluish glaucous when fresh, purplish brown on dry	Greenish glaucous when fresh, brown on dry
Male flower	Petals and stamens spreading; torus hairy; rudimentary ovary absent	Petals and stamens not spreading; torus glabrous; rudimentary ovary present
Female flower	Tepals linear-oblong; outer staminode linear; inner staminode appendage linear, projecting well above the glands	Tepals obovate; outer staminode spathulate; inner staminode appendage spathulate, not projecting above the glands
Fruit	Ellipsoid	Compressed globose

filaments *c.* 6 mm long; anthers *c.* 0.9 × 0.45 mm, basifixed; inner stamens juxt-opposed outer stamens; filaments *c.* 1.5 mm long; anthers *c.* 0.75 × 0.6 mm, base of inner stamen flat, sericeous, 2-glandular at base; glands bean-shaped, *c.* 0.75 mm long; stalk *c.* 0.45 mm long; anthers introrse, 4-celled, valvular. Female umbellules: peduncles 4 – 4.8 mm long; flowers 4 in each umbellule; pedicels *c.* 2.6 × 1.5 mm, laterally compressed, sericeous; tepals 6, linear-oblong, *c.* 1.2 × 0.8 mm, entire or rarely distantly serrate at margins, acute at apex, valvate, cream-coloured. Hypanthium concave, densely sericeous inside; appendages 6, 2-whorled; outer whorl linear-subulate, *c.* 1.5 mm long; inner whorl 2-glandular; gland bean-shaped, *c.* 1.2 mm long; stalk *c.* 0.6 mm long, flattened, thick, terminates into a free projection; pistil *c.* 3 mm long; ovary urn-shaped, *c.* 1.2 × 0.9 mm; style *c.* 1.8 mm long, terminating into a discoid, lobulate, echinate stigma. Infructescence 1 – 4-fruited; pedicels *c.* 7 mm long. Berries ellipsoid, *c.* 13 × 8 mm, apiculate, red; perianth tube *c.* 7 mm across, fleshy, white gland-dotted, densely brown-sericeous inside, sparsely so outside, greenish; seed 1, grey.

**Flowering & Fruiting:** April to May and September to October. None of the other *Litsea* species distributed here flowers twice in a year.

**Habitat:** Undisturbed wet evergreen forests, between 900 and 1200 m.

**Note:** This species occurs in *Cullenia-Palaquium-Aglaiia* dominated vegetation type. Understorey is dominated by *Lasianthus cinereus* Gamble, *L. strigillosus* Hook.f., *Diotacanthus grandis* (Bedd.) Benth. ex C.B. Clarke, *Strobilanthes rubicundus* (Nees) T. Anderson. Usually few female plants along with many male plants are seen in clumps. Quantitative vegetation studies through plot methods showed that there are 13 individuals encountered in a total area of 0.6 ha in an undisturbed forest. In a 25-year old selectively logged forest, density was 50% less, while none of them were recorded from the regenerating secondary clear cut forest. Flowers are visited by bees and flies. Reddish fleshy fruits are dispersed by birds that forage in the forest understory.

**Paratypes:** INDIA, **Tamil Nadu**, Tirunelveli district, Courtallum hills, *s. die*, *Beddome* 6811; S. Tinnevely, Singampatty hills, *s. die*, *Beddome* 6813 (BM!).

**Distribution:** It is known only from Kalakad Muddanthurai Tiger Reserve and Courtallum hills of Tirunelveli district of Tamil Nadu, India.

**Etymology:** The species epithet indicates its type locality Kakkachi.

**Conservation status:** The population located in Kakkachi forests does not face any threat as it occurs within a Tiger reserve. However, population of this species found in Courtallum reserve forest is

more threatened as it is located adjacent to plantations. This new species can be categorized as Near Threatened (NT) following the guidelines of 2001 IUCN Red List Categories and Criteria version 3.1. The population may disappear due to clearing of forests for raising plantation crops.

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