

## A new species of *Litsea* (Lauraceae) from Kerala part of Western Ghats, India

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### Abstract

A new species of *Litsea* from India is described and illustrated. *Litsea indoverticillata* is recognized from the Malabar Wildlife sanctuary of Nilgiri phytogeographical zone of southern Western Ghats. It is distinguished from the closely related *L. quinqueflora* and *L. verticillata* by straggling shrub habit; 7–15 mm long, glabrous petiole, chartaceous and glabrous leaves, glabrous midrib; 15–24 pairs of lateral veins; solitary, glabrous, and pruinose inflorescence; greenish-white to whitish flowers.

**Keywords:** Nilgiri Biosphere Reserve, Kozhikode, Kerala, Southern Western Ghats

### Introduction

The generic name *Litsea* Lamarck (1792: 399) is derived from a Japanese vernacular name, “*Li Tse*” (Gledhill 2008). The genus belongs to the family Lauraceae and consists of more than 300 species, distributed mostly in tropical Asia, with a few species in the islands of the Pacific, Australia and in North and Central America (van der Werff 2001).

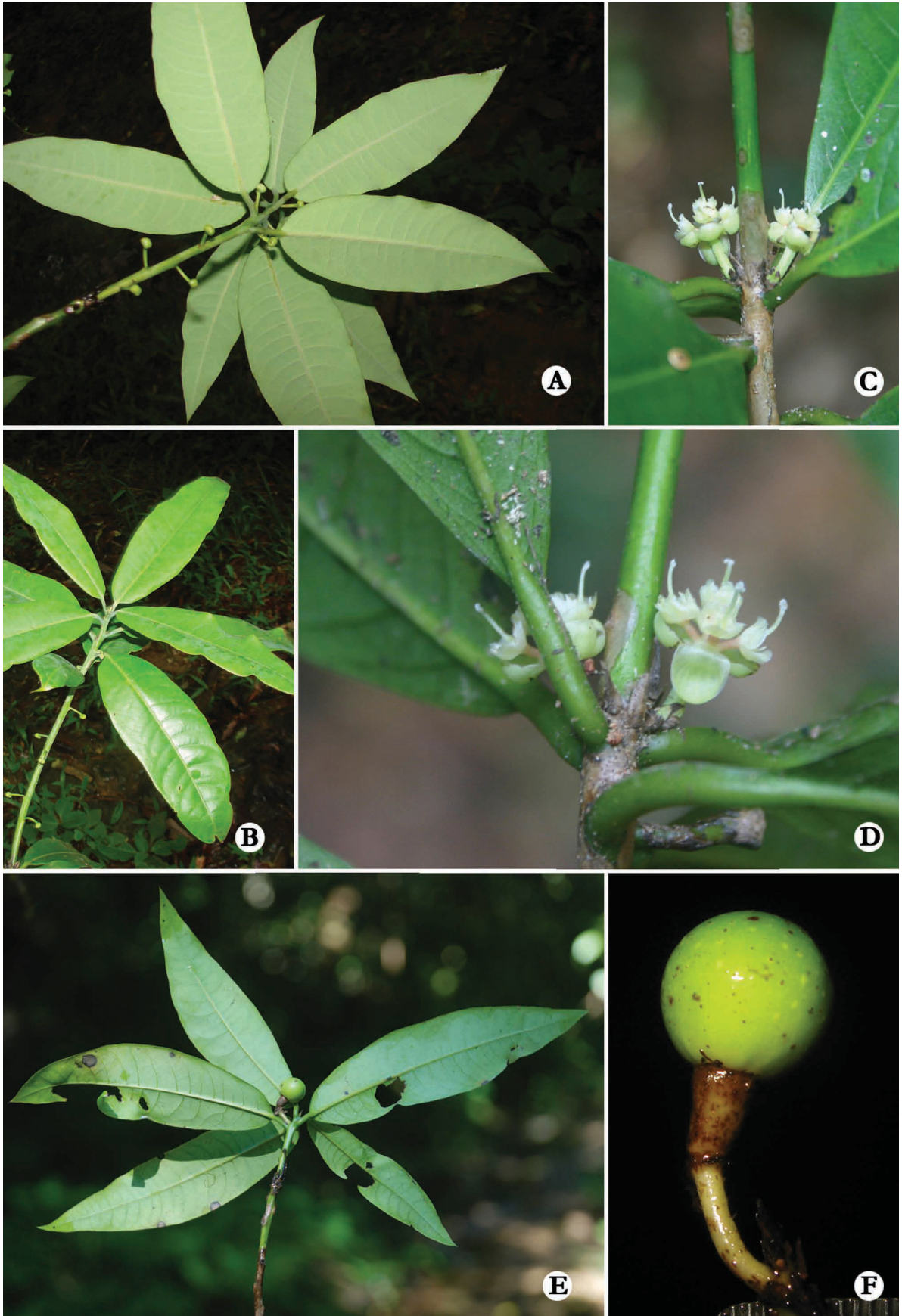
In India, a total of 46 species have been recorded (Bhuniya *et al.* 2010; Robi *et al.* 2015). About 22 species of *Litsea* were recorded from south India (Robi *et al.* 2015). While revising the family Lauraceae of South India, a species of *Litsea* was collected which is similar to *L. quinqueflora* (Dennstedt 1818) Suresh in Nicolson *et al.* (1988: 158) and *L. verticillata* Hance (1883: 356) but remarkably different from them in its flowers, glabrous leaves and stem. After scrutiny of literature and type sheets of species published from India, it is confirmed that the above *Litsea* is new to science. A detailed description and color photographs follow here.

### *Litsea indoverticillata* Robi & Udayan *sp. nov.* (Fig. 1)

The new species is closely similar to *L. quinqueflora* and *L. verticillata*, but differs in having a straggling shrub habit; 7–15 mm long, glabrous petiole; chartaceous and glabrous leaves, glabrous midrib; 15–24 pairs of lateral veins; solitary, glabrous and pruinose inflorescence; greenish-white to whitish flowers (Table 1).

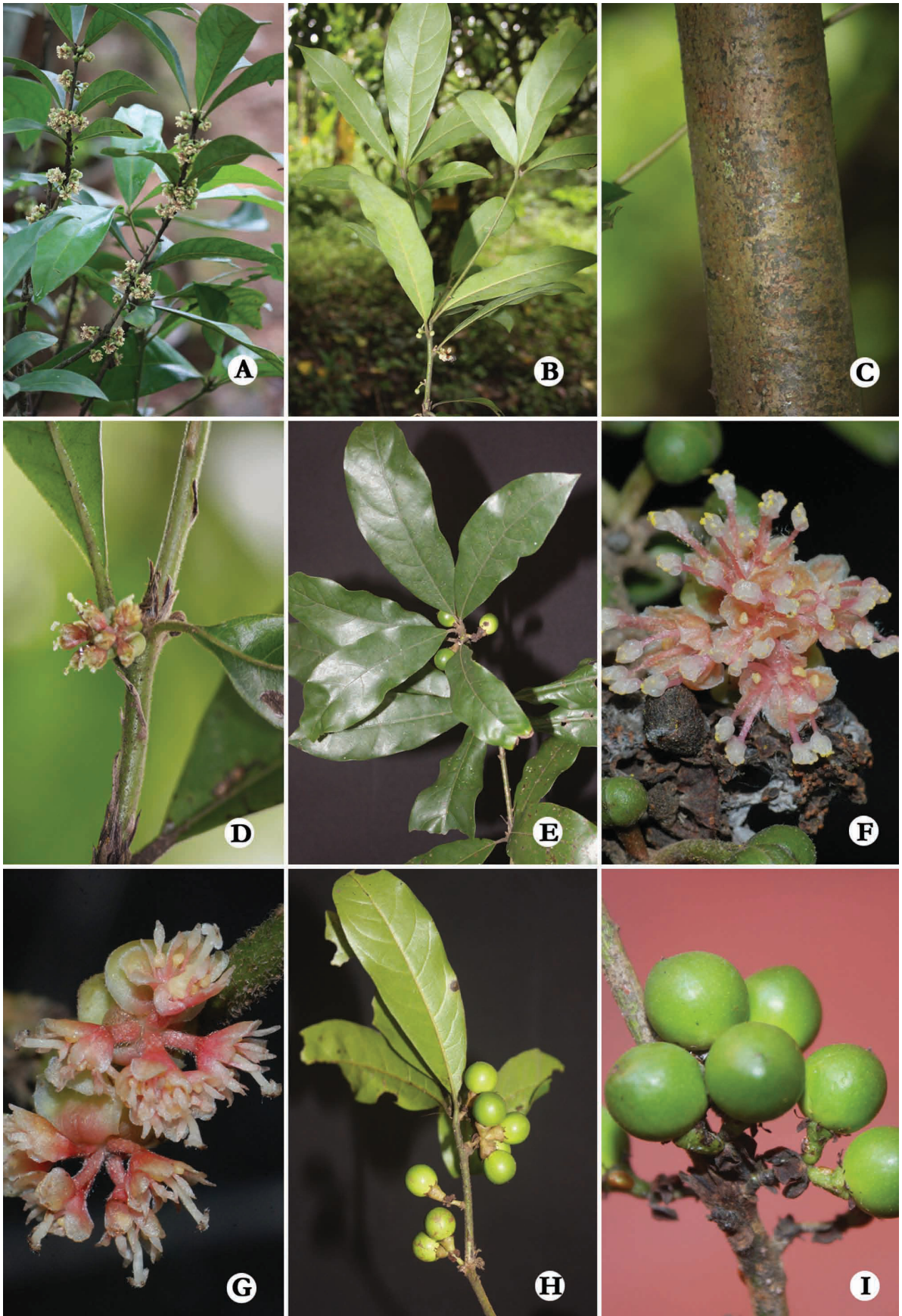
Type:—INDIA, **Kerala**, Kozhikode dist.: Kakkayam dam, old estate road, ±1000 m, 17 June 2010 (fl.), P.S. Udayan & A.J. Robi 6930 (holotype, CMPRI!, isotypes, MH!, KFRI!).

Straggling shrubs, 3–5 m tall; bark brown, smooth, lenticellate, inner bark pale yellow; branchlets slender, glabrous, and greenish. Leaves alternate, clustered towards the branch apices or sub-verticillate; petioles 7–15 mm long, stout, glabrous, slightly grooved above; lamina 12–16(–25) × 3–4(–6) cm, lanceolate to ovate-lanceolate, glabrous on both sides, smooth and glossy above, pale glaucous below, chartaceous, base cuneate to rounded, apex acuminate to acute; midrib raised above, irregularly angular beneath, glabrous on both sides; lateral veins 15–24 pairs, slender, pinnate, closely arranged, straight, becoming curved and loop-connected towards margin, prominent below and slightly impressed above, glabrous on both sides; intercostae finely reticulate, raised below. Inflorescence a lateral, solitary



**FIGURE 1.** *Litsea indoverticillata* Robi & Udayan *sp. nov.* **A.** Habit with abaxial view of leaves; **B.** Leaves, adaxial view; **C.** Inflorescences; **D.** Female umbels showing involucre bracts and flowers; **E.** Branch with infructescence; **F.** Immature fruit. (Photos A,B,E,F by A.J. Robi & C, D by N. Sasidharan)





**FIGURE 2.** *Litsea quinqueflora* (Dennst.) Suresh **A.** Habit of branch with male flowers; **B.** Habit of branch with female flowers; **C.** Bark; **D.** Branchlet with female inflorescence; **E.** Branch with immature fruit; leaves seen from adaxial side; **F.** Umbel with male flowers; **G.** Umbels with female flowers; **H.** Branch with infructescences; **I.** Immature fruits. (Photos by A.J. Robi)

umbel, in axils of leaves or caducous bracts, glabrous, pruinose; peduncle of umbels 5–13 mm long, slender, glabrous and pruinose; involucre bracts 4, ca. 3 × 3 mm, orbicular, concave, glabrous and glossy on both sides, coriaceous, caducous after anthesis. Flowers 5 in each umbel, 4 mm long, greenish-white to whitish; pedicels up to 2 mm long, silky-pubescent; tepals 6, ca. 1.3 × 0.8 mm, ovate, acute at apex, sub-equal, membranaceous, glabrous on both sides, greenish-white. *Male flowers*: not seen. *Female flowers*: staminodes 12, those of the outer whorls linear, those of the inner whorls subulate, ca. 1.3 mm long, glabrous, 2-glandular, glands ovate, ca. 0.5 mm long, stipitate; ovary ca. 1 mm long, globose; style ca. 1 mm long, curved, stout, greenish-yellow, glabrous; stigma capitate, papillose, white. Fruit 10 × 10 mm, globose, greenish to black, obscurely white dotted, glabrous, glossy, and seated on the enlarged perianth tube; perianth tube turbinate, greenish in color, glabrous; fruiting pedicels 5 mm long, stout, glabrous, brown and woody in nature.

**Flowering & Fruiting**:—June–August.

**Distribution & Habitat**:—So far, only known from two collections from Malabar Wildlife Sanctuary of Kozhikode, Kerala, India. It is growing as undergrowth in wet evergreen forests of the sanctuary at about 1000 m, apparently very rare.

**Etymology**:—The specific epithet refers to its affinity to *L. verticillata* and ‘indo’ means Indian origin.

**Relationships**:—Even though male flowers of the new species are still unknown, we are confident to place it in *Litsea* because of its similarity to *L. quinqueflora* and *L. verticillata*. Species of *Lindera* are so far not known from southern India. The species shows similarities with *L. quinqueflora* (Fig. 2) in its 5-flowered umbels, shrubby habit, and fruits. *Litsea indoverticillata* is different from *L. quinqueflora* in having solitary umbels, greenish-white floral parts, and 15–24 pairs of lateral veins. In contrast, *L. quinqueflora* is characterized by mostly shorter leaves, 7–12(–20) × 3–5(–8) cm, elliptic-lanceolate or broadly elliptic, abaxially tomentose, not glaucous, with the midrib densely tomentulose above, 7–11(–15) pairs of arcuate lateral veins, solitary and clustered inflorescences, and pale pink or purple floral parts. The new species also shows similarities with *L. verticillata* in its sub-verticillate arrangement of leaves.

**Conservation Status**:— So far, it is known from a single locality only. A major threat to the population is forest fire, which can extend from the grassland to the adjacent forest. Clearing of trekking paths in the forest can also cause damage to the existing population. In the absence of any detailed data on populations, the species is categorized as ‘Data Deficient’ (DD) (IUCN 2016).

**Additional specimens examined (Paratypes)**:—INDIA, Kerala, Kozhikode dist.: Kakkayam dam, old estate road, ±1000 m, 17 August 2011 (fl. & fr.), P.S. Udayan & A.J. Robi 28082 (KFRI!).

**TABLE 1.** Comparison between *L. quinqueflora*, *L. indoverticillata* and *L. verticillata*.

| Attributes         | <i>L. quinqueflora</i>  | <i>L. indoverticillata</i>  | <i>L. verticillata</i>  |
|--------------------|---|---|---|
| Habit              | Shrub to small tree   | Straggling shrub  | Shrub or small tree   |
| Branchlets         | Gray-tomentose  | Glabrous  | Densely yellow hirsute  |
| Leaves             | 7–12(–20) × 3–5(–8) cm, elliptic-lanceolate or broadly elliptic, base attenuate, apex acuminate or acute, margin slightly undulate, glabrous above and pubescent abaxially, thinly coriaceous | 12–16(–25) × 3–4(–6) cm, lanceolate to ovate-lanceolate, base cuneate to rounded, apex acuminate to acute, glabrous on both sides, pale glaucous, chartaceous | 7–25 × 2–6 cm, lanceolate or long elliptic-oblongate, base acute, obtuse, or rotund, apex acuminate, pubescent abaxially, |
| Petiole            | 5–10 mm long, densely grayish-tomentose   | 7–15 mm long, glabrous  | 2–6 mm long, densely yellow villous   |
| Midrib             | Densely grayish-tomentose, distinctly smoothly raised beneath   | Glabrous on both sides, prominent on both sides, distinctly angular beneath   | Densely yellow villous  |
| Lateral veins      | 7–11 pairs, pubescent abaxially   | 15–24 pairs, glabrous on both sides   | 12–14 pairs, villous abaxially  |
| Inflorescence      | Solitary or cluster of umbels, in axils of leaves or from bud scales, 1–5 umbels in brachyblast; 5-flowered   | Solitary umbel, in axils of leaves or lateral, brachyblast absent; 5-flowered   | Cluster of umbels, 2–10 umbels in brachyblast; 5–8-flowered   |
| Peduncle of umbels | 5–10 mm long, densely pubescent   | 5–13 mm long, glabrous and pruinose   | 8–20(–35) mm long, tomentose  |
| Flowers            | Pale pink to purple   | Greenish-white to whitish   | Pale yellow   |
| Fruit              | Globose, 10 × 8 mm, seated on the enlarged perianth tube; fruiting pedicels 8 mm long   | Globose, 10 × 10 mm, seated on the turbinate perianth tube; fruiting pedicels 5 mm long   | Ovoid or ellipsoid, 10–15 × 5–6 mm, seated on discoid perianth tube; fruiting pedicels 2–3 mm long                        |

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