

# A re-investigation on the identity of *Litsea nigrescens* (Lauraceae) in the Western Ghats of India

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**Abstract:** *Litsea nigrescens* Gamble has been considered as endangered in the wild. Hitherto, there are no records of this species from the Western Ghats, India after the type collection. Recently, its presence in the Western Ghats was confirmed. It was long confused with *L. oleoides* (Meisn.) Hook.f., a rare species distributed only in the shola forests of Nilgiris and Pulneys. A detailed description, photographs, distribution, ecology and taxonomic history are provided.

**Keywords:** Kerala, Lauraceae, Nilgiris, Rediscovery, Shola forest.

## Introduction

*Litsea* Lam. (Lauraceae) consists of more than 400 species, chiefly distributed in tropical Asia, with a few species in the Pacific islands, Australia, and in North and Central America (Werff, 2001). More than 46 taxa of this genus are reported from India, predominantly concentrated in northeastern India and southern India (Bhuinya *et al.*, 2009; Robi, 2014; Robi *et al.*, 2015). Of these, 22 species are recorded from South India (Robi & Udayan, 2013; Robi, 2014). *Litsea* is distinct from other genera in Lauraceae by their umbellate inflorescences, unisexual trimerous flowers, nine stamens, 4-locular anthers, equal or reduced tepals, small to rather large one-seeded berries seated on a cup-shaped perianth tube, and alternate or sometimes opposite or rarely whorled leaves, which in some species are crowded towards the apex.

While revising the species of *Litsea* in the Western Ghats, inconsistencies were noticed in the

identification of *L. nigrescens* Gamble and *L. oleoides* (Meisn.) Hook.f. An extensive study of the literature (Ramachandran & Nair, 1988; Vajravelu, 1990; Sasidharan & Sivarajan, 1996; Mohanan & Sivadasan, 2002), herbarium specimens housed at CES, CAL, CALI, K, KFRI, MH, RHT and live material, enabled us to correctly distinguish these two taxa, and recognize them as distinct. Further studies on the specimens revealed that the majority of *L. nigrescens* collections have been mistakenly identified as *L. oleoides*, an allied species rarely distributed in shola forests of Nilgiris and Pulney hills. The present paper provides a detailed description and taxonomic affinities of *L. nigrescens* along with other relevant notes, and color photographs to facilitate easy differentiation and identification of the species.

## Taxonomic treatment

***Litsea nigrescens*** Gamble, Fl. Pres. Madras 2: 1236. 1925; V.Chandras. in A.N.Henry *et al.*, Fl. Tamil Nadu 2: 211. 1987; Sasidh., Biodiv. Doc. Kerala-Fl. Pl. 399. 2004; Bhuinya *et al.*, Bangladesh J. Pl. Taxon. 17(2): 187. 2010. *Lectotype* (designated by Singh, 2015): INDIA, Kerala, Travancore hills, 1889, T.F. Bourdillon 48 (K [K000357614 digital image!]).

*Tetranthera panamanja* auct. Wight, Icon. Pl. Ind. Orient. 5: t. 1836. 1852, non Buch.-Ham., 1830.

*Litsea oleoides* auct. non (Meisn.) Hook.f.: V.S.Ramach. & V.J.Nair, Fl. Cannanore Dist. 397. 1988; Vajr., Fl. Palghat Dist. 405. 1990; M.Mohanan & A.N.Henry, Fl. Thiruvananthapuram 395. 1994;

Sasidh. & Sivar., Fl. Pl. Thrissur For. 383. 1996; Sasidh., Fl. Shenduruny WLS 273. 1997; Sivar. & P.Mathew, Fl. Nilambur 587. 1997; Sasidh., Fl. Parambikulam WLS 270. 2002; N.Mohanan & Sivad., Fl. Agasthyamala 571. 2002; Anil Kumar *et al.*, Fl. Pathanamthitta 425. 2005. **Fig. 1**

Trees, to 20 m tall; bark pale brown, smooth, slightly rugose, yellowish-brown inside; branchlets greyish, glabrous, stout. Leaves simple, alternate, stipulate; petioles 10–30 mm long, stout, grooved above, glabrous; lamina 6–22 × 7–12 cm, oblong, elliptic-oblong or elliptic-lanceolate, base attenuate to cuneate, apex acuminate or acute, margins entire, glabrous, pale-brown or black beneath when dry, thinly coriaceous; midrib glabrous on both sides, slightly grooved above, prominent beneath; lateral veins 10–12 pairs, pinnate, arcuate, immersed above, obscure beneath, intercostae reticulate obscure. Inflorescences umbels, on reduced branchlets (brachyblasts) with the appearance of a raceme of umbels, axillary; brachyblast *c.* 6 cm long, bearing 5–8 umbels; peduncles 6 mm long; involucre bracts 4, orbicular, *c.* 5 × 3 mm, concave, densely silky pubescent, coriaceous. Flowers unisexual, 3–6 in each umbel, white, 4 mm long, silky-pubescent; tepals 6, lanceolate or oblong, *c.* 3 × 1.5 mm, acute, subequal, membranaceous, glabrous inside, silky-pubescent outside, creamy-white; pedicels *c.* 3 mm long, densely silky pubescent. *Male flowers:* Stamens 12, in 4 rows, unequal; filaments slender, villous, all with 2-glands at the base, *c.* 3 mm long in outer stamens, *c.* 2 mm long in inner stamens; anthers *c.* 1.5 mm long, 4-locular, the upper 2 smaller, lower 2 larger, introrse; pistillodes minute or rudimentary. *Female flowers:* Staminodes as many as stamens in male, outer ones linear, inner ones subulate, 2–3 mm long, 2-glandular at the base; ovary globose, *c.* 1 mm long; style *c.* 1 mm long, thick; stigma capitate, papillose. Berries depressed globose, 2–2.5 cm across, greenish, reddish to dark purple, white specked, smooth, glossy, seated on a perianth tube; perianth tube disc-shaped, persistent, 1 cm across, glabrous outside, margins entire; fruiting pedicels stout, angular, *c.* 7 mm long.

*Flowering & fruiting:* Flowering from September to December and fruiting from December to May.

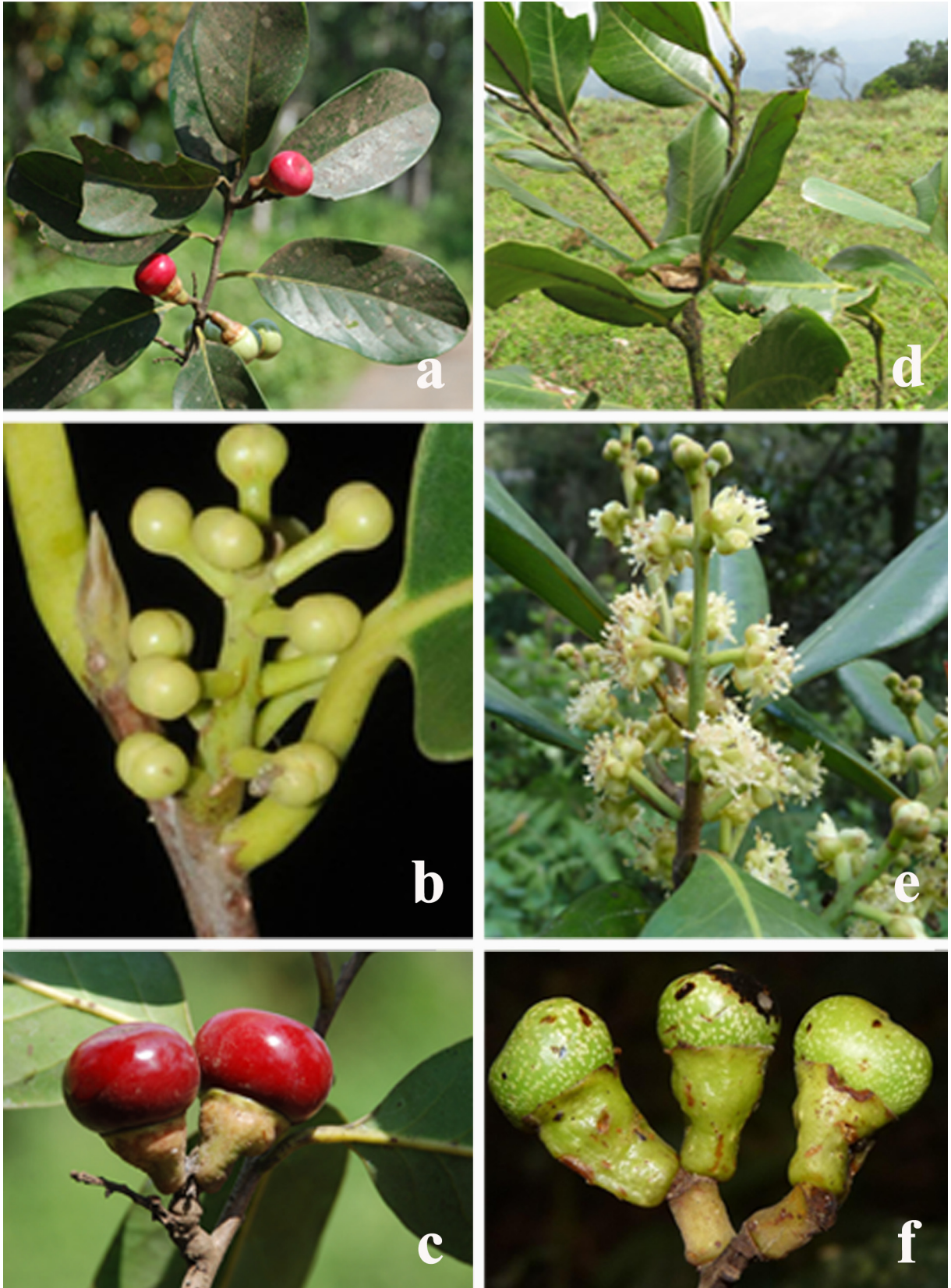
*Habitat:* Growing in evergreen forests between 800–1400 m above sea level.

*Distribution:* Endemic to South India.

*Specimens examined:* INDIA, **Karnataka**, Coorg district, Bhagamandala to Thadiyandamol, 12.05.2010, P.S. Udayan, A.J. Robi & Satheesh George 6801 (CMPR). **Kerala**, Idukki district, Kumily, Patham mile, 16.06.1976, C.D. Ridsdale 152 (MH); Malappuram district, Thalichola, 05.02.1982, Philip Mathew 33098 (CALI); Palakkad district, Nelliampathy, ±800 m, 31.05.2008, P.S. Udayan, Satheesh George & K.V. Thushar 5091 (CMPR); Thrissur district, Sholayar, ±700 m, 12.08.1981, N.G. Nair 49 (KFRI). **Tamil Nadu**, Namakkal district, Kodai, Thdiankudisai, ±1050 m, 13.04.1987, K.M. Matthew 49272 (RHT); *ibid.*, ±1100 m, 14.04.1987, K.M. Matthew 49285 (RHT); Madal shola, ±1225 m, 17.04.1977, D.I. Arockia Sammy 7694 (RHT); Periya shola, ±1300 m, 16.10.1977, K.M. Matthew & V. Karunichhi 9707 (RHT); *ibid.*, ±1325 m, 21.10.1978, K.M. Matthew & C. Manoharan 18668 (RHT); Pongal shola, Kolli hills, ±1200 m, 14.04.1997, D.I. Arockia Sammy 7577 (RHT).

*Notes:* Meisner (1864) described *Tetranthera oleoides* Meisn. based on the specimens collected from Sispara, Nilgiri hills by Robert Wight in 1840. Subsequently, the transfer of *T. oleoides* into *Litsea* and its first combination, *Litsea oleoides* (Meisn.) Hook.f. was made by Hooker (1886) in the *Flora of British India*. He also commented that “Meisner describes this as having opposite or sub-opposite leaves, but I find them opposite only on very young shoots”.

T.F. Bourdillon, collected a specimen of *Litsea* (T.F. Bourdillon 48, K) from the Travancore hills in 1889 and doubtfully annotated on the sheet “*Litsea* sp. n.? or aff. *L. oleoides*”. D. Brandis in 1904 attached a determinavit on the sheet which read “*L. oleoides* has shining, rigidly coriaceous leaves with a very prominent midrib. They are opposite or nearly so,



**Fig. 1.** a–c. *Litsea nigrescens* Gamble: a. Fruiting branch; b. Female brachyblast with unopened umbels; c. Ripe fruits; d–f. *Litsea oleoides* (Meisn.) Hook.f. d. Branch; e. Male brachyblast with opened umbels; f. Unripe fruits (photos a–c by A.J. Robi; d by K.A. Anilkumar & e–f by R.K. Singh).

**Table 1.** Comparison of morphological characters of *L. nigrescens* and *L. oleoides*

Characters	<i>L. nigrescens</i> Gamble	<i>L. oleoides</i> (Meisn.) Hook.f.
Branchlets	Terete, lenticellate	Angular, smooth
Phyllotaxy	Alternate	Opposite or subopposite
Lamina	6–22 × 7–12 cm, base attenuate to cuneate, apex acuminate or acute, margins entire, pale-brown or black beneath when dry, thinly coriaceous	6–14 × 3–5 cm, base acute or rounded, apex acute or obtuse or rounded, margins slightly incurved, reddish-brown beneath when dry, rigidly coriaceous
Lateral veins	10–12 pairs	8–10 pairs
Brachyblasts	Terete, umbels arranged oppositely; peduncles to 6 mm long	Quadrangular, umbels arranged alternately; peduncles to 10 mm long
Involucral bracts	4	6
Flowers	3–6 in each umbel	4 in each umbel
Staminodes	12	9
Berries	2–2.5 cm across, cup broadly obconic; fruiting pedicels angular	1.5–2 cm across, cup narrowly obconic; fruiting pedicels terete

the novelty of Bourdillon's specimen and named it *Litsea nigrescens* in the *Flora of Presidency of Madras*.

*Litsea nigrescens* resembles *L. oleoides* (Fig. 1) in its large, compressed globose and reddish fruits. The confusion due to the similarity between the fruits has led to the misidentification of *L. nigrescens* as *L. oleoides* by several workers. However, *Litsea nigrescens* can be easily distinguished from *L. oleoides* in having thinly coriaceous, alternate leaves, 6–22 × 7–12 cm; 10–12 lateral veins; 3–6-flowered umbels and 12 staminodes per flower (Table 1). The present study reveals that the distribution of *L. nigrescens* is common in the wet evergreen forests of South India.

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