



A new variety of *Alseodaphne semecarpifolia* Nees (Lauraceae) from the Western Ghats of Kerala, India

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ABSTRACT: A new variety from the Western Ghats of Kerala, *Alseodaphne semecarpifolia* Nees var. *malabarica* var. nov. is described and illustrated. It chiefly differs from its most morphologically similar taxon *A. semecarpifolia* Nees var. *angustifolia* Meisn., in having thickly coriaceous, considerably smaller leaves and entire margin; ferruginous tomentose apical bud; sparsely puberulent inflorescence; 2-loculed third whorl of stamens; glabrous, greenish fruit pedicel.

KEY WORDS: *Alseodaphne semecarpifolia*, India, Kerala, Lauraceae, Malabar, New variety.

INTRODUCTION

The family Lauraceae is one of the largest and important tropical and sub-tropical families of trees and shrubs. This family is mainly distributed in America, Tropical Asia, Australia and Madagascar. A total of 2500-3000 species in 50 genera estimated worldwide (Van der Werff and Richter, 1996; Mabberley, 2008). The genus *Alseodaphne* was described by Nees (1831) with *A. semecarpifolia* Nees as the type species. Since then, a total of 104 scientific plant names have been published by various authors (The plant list, 2017). In India the genus is represented by 7 species. Of these, two species viz. *A. semecarpifolia* Nees and *A. habrotricha* Kosterm. were recorded from Peninsular India (Hooker, 1886; Gamble, 1925; Kosterman, 1973). Hooker (1886) recognized 2 varieties i.e. vars. *angustifolia* Meisn. and *parvifolia* Hook.f. Kosterman (1973) while revising the Asian species of *Alseodaphne* treated vars. *angustifolia* and *parvifolia* as synonyms of *A. semecarpifolia*. While consulting CAL, K, MH and PDA, we came across a few specimens of *A. semecarpifolia* and it would be possible to split retain the status of two varieties of the species *A. semecarpifolia*.

After critical study, we found several overlapping characters creating taxonomic confusion in this group, and resolved the taxonomic uncertainty prevailing in this complex (Table 1.). The variations existing in this species are distinct in vegetative structure as well as in floral structures, particularly in fruit size and fruiting pedicel. Therefore, we retain the varietal status *A. semecarpifolia* var. *angustifolia* and *A. semecarpifolia* var. *parvifolia*.

According to the recent molecular phylogenetic analysis of the *Persea* group, *Alseodaphne* and *Dehaasia* are polyphyletic in origin (Li *et al.*, 2011). In

vegetative condition, it is impossible to distinguish the two genus; both are closely related, but different in the number of anther locule (four and two) arrangement (Van der Werff, 2001). As part of the taxonomic revision of the family Lauraceae in South India, we came across a flowering specimen of the genus *Alseodaphne* from evergreen forests of Kakkayam, Malabar Wildlife Sanctuary, Kerala on March 2008 and the material was tentatively identified as *Alseodaphne semecarpifolia*. Later critical studies in subsequent years viz., 2009, 2010 and 2011 reveals that the third whorl of stamens with two basal glands having 2-loculed lobes is distinct, which is 4-loculed in *A. semecarpifolia*. Therefore, it is an intermediate character between *Alseodaphne* and *Dehaasia* genus circumscription, it is concluded that the variety deserves to be described as a novelty.

TAXONOMIC TREATMENT

Alseodaphne semecarpifolia Nees var. *malabarica* Robi & Udayan, var. nov. **Type:** INDIA. Kerala: Kozhikkode District, Malabar Wildlife Sanctuary, Kakkayam, ± 850 m, 27 May 2011, A. J. Robi & P.S. Udayan 22942 (Holotype: MHI!; Isotype: KFRI!, CMPR!).

Figs. 1 & 2

This variety shows similarities with *Alseodaphne semecarpifolia* var. *angustifolia* in the inflorescence nature, but differs in having thickly coriaceous (vs. thinly coriaceous), considerably smaller leaves and entire margin (vs. wavy margin); ferruginous tomentose apical bud (vs. glabrous); sparsely puberulent inflorescence; 2-loculed (vs. 4-loculed) third whorl of stamens; glabrous (vs. pubescent) at base, greenish (vs. purple) fruiting pedicel (Table 1).

Small trees, 8–12 m tall, bark brown, blaze brownish-yellow. Branchlets ash-colored when mature,

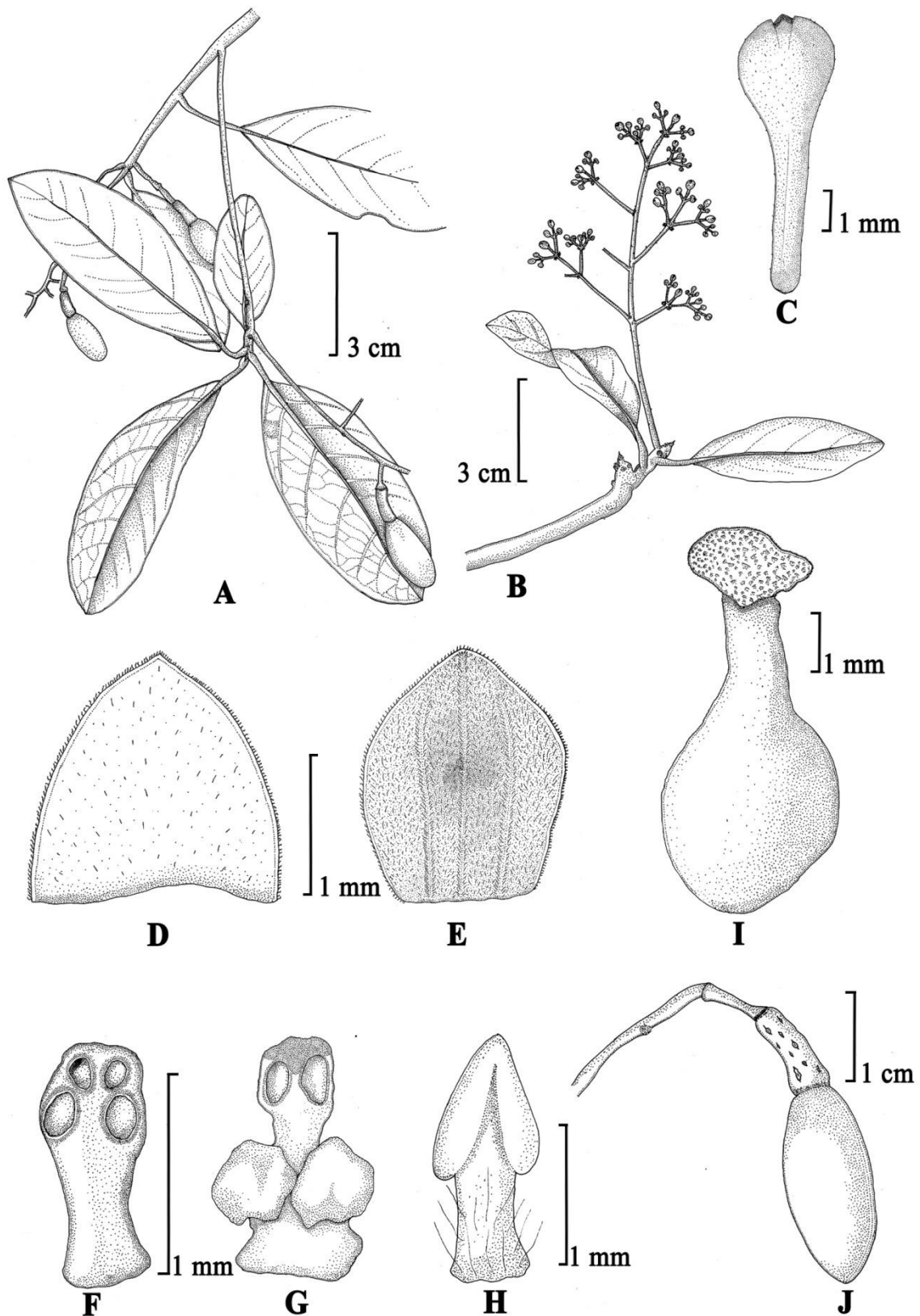


Fig. 1. *Alseodaphne semecarpifolia* Nees var. *malabarica* Robi & Udayan. A. Habit with fruits ; B. Inflorescence; C. Flower; D. & E. adaxial and abaxial view of perianth lobes; F. & G. Stamens (eglandular and glandular); H. Staminode; I. Pistil; J. Fruit.

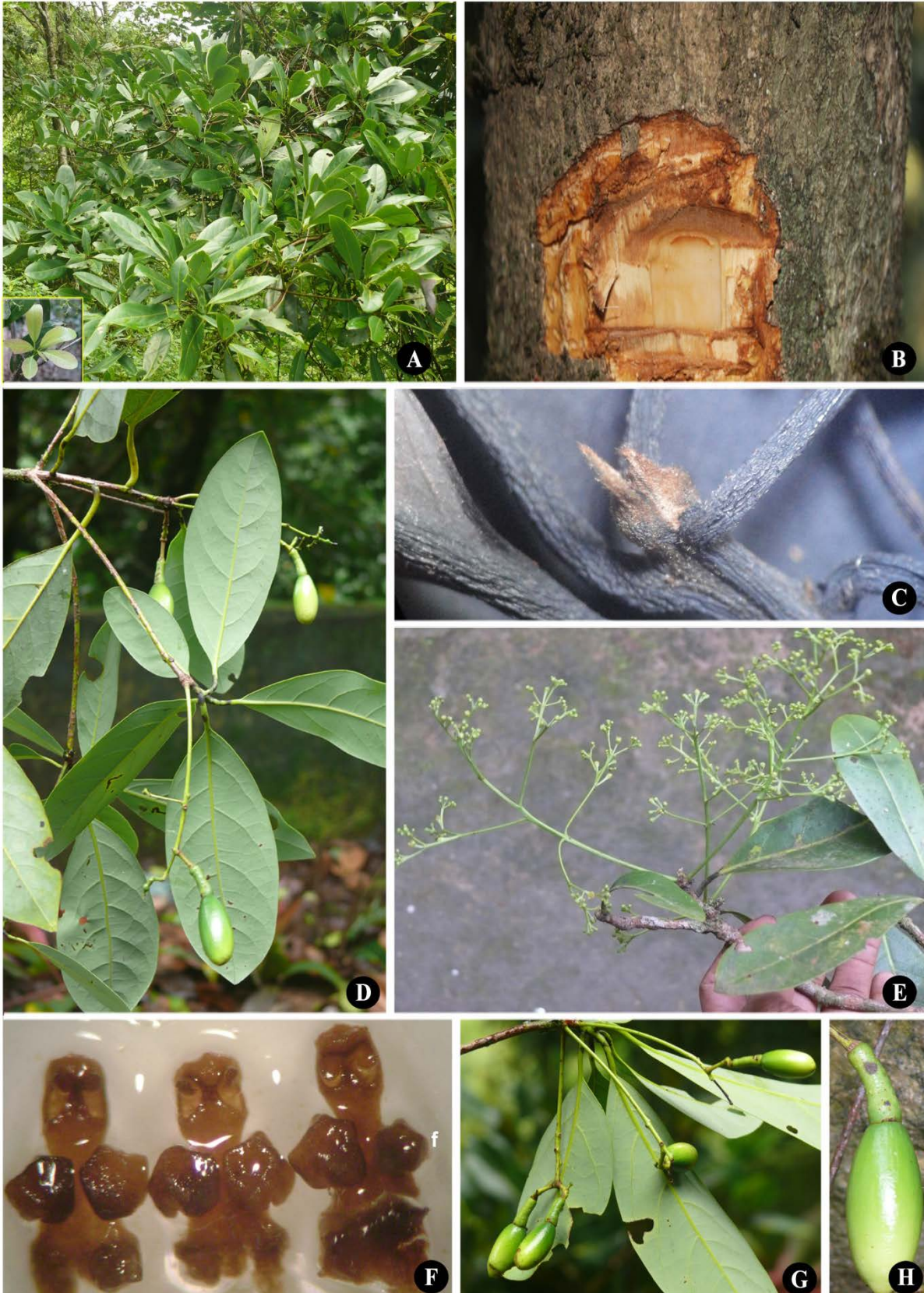


Fig. 2. *Alseodaphne semecarpifolia* Nees var. *malabarica* Robi & Udayan. **A.** Habit with flushing; **B.** Bole showing bark and blaze; **C.** Terminal bud; **D.** Leaves abaxial view ; **E.** Inflorescences; **F.** stamens - enlarged view; **G.** Infructescence; **H.** Fruit - enlarged

**Table 1.** Diagnostic morphological characters of *A. semecarpifolia* var. *malabarica* var. nov. and related varieties

Characters	var. <i>semecarpifolia</i>	var. <i>malabarica</i>	var. <i>angustifolia</i>	var. <i>parvifolia</i>
Habit	Large tree, bark vertically fissured	Small tree, bark not fissured	Small tree, bark fissured	Small tree, bark not fissured
Apical bud	Partly minutely sericeous	Ferruginous tomentose	Glabrous	Densely sericeous
Petiole	6–25 mm long, thick	5–20 mm long, thick	10–15 mm long, rather slender	6–14 mm long, thick
Leaves	Cuneately- obovate or oblong, 14–17×8–11 cm, thinly coriaceous, apex rounded or emarginated and white abaxially	Obovate-oblong or elliptic, 7.5–14×3–5.8 cm, thickly coriaceous, apex obtuse or acute and grey abaxially	Oblong-lanceolate, apex acute, 8–11×3.5–4.5 cm, thinly coriaceous, white abaxially	Elliptic-obovate, 3–10×2.5–6 cm, rigidly coriaceous, apex obtuse, grey abaxially
Lateral nerves	6–10 pairs, erect, slender	5–8 pairs, slightly curved, thick	6–9 pairs, somewhat erect, slender	6–9 pairs, erect, slender
Inflorescence	Panicle, cymosely umbellate at tips of the branches, greenish-yellow, terete	Panicle, strictly cymose at tips of the branches, yellowish, terete	Paniculate cyme, brownish-red, subterete	Panicle with short branchlets, greenish, somewhat angular
Stamens	Filaments villous at base, 4-locular anther lobes	Filaments glabrous at base, 4-locular and 2-locular anther lobes	Filaments pubescent, 4-locular anther lobes	Filaments pubescent, 4-locular anther lobes
Fruit Pedicel	Obconical, 10 mm long, warted, greenish yellow	Nearly obconical, 8–12 mm long, lenticellate, yellowish	Somewhat obconical, 8–11 mm long, pustular, brownish red.	Obconical, 5–13 mm long, densely lenticellate or somewhat woody
Fruit	19–24 mm long, ellipsoid	18–30 mm long, ellipsoid	8–12 mm long, ellipsoid	20–26 mm long, globose or ellipsoid

slender, sub-verticillate, terete, scattered with sub-orbicular lenticels, glabrous except young part. Terminal buds ovoid; bud scales ovate, c. 2 mm long, base orbicular, apex narrowly acuminate, glabrous inside, compact, densely ferruginous-tomentose outside; leaf scars semi-circular, prominent. Leaves alternate, crowded towards the apex of branches; petiole slightly thick, 5–20 mm long, greenish-yellow, concave above, convex below, glabrous; leaf blade obovate-oblong or elliptic oblong, 7.5–14 × 3–5.8 cm, thickly coriaceous, dark greenish, glossy and smooth adaxially, white glaucous abaxially, midrib greenish-yellow, turns to brownish when dry, elevated abaxially, slightly impressed adaxially; lateral veins distantly placed, 5–8 pairs, very conspicuous abaxially, slightly elevated adaxially, oblique, arcuately connected at ends, transverse veins and veinlets reticulate, conspicuously elevated on abaxially, base acute or attenuate, apex obtuse or acute, margin entire. Inflorescence: axillary cymose panicles or pseudo-terminal, clustered at apex of branchlets; 10–16 cm long, many flowered, branched; branches sub-opposite or alternate, lowest branches up to 5 cm long; peduncles 6–13 cm long, sparsely silky-puberulent along rachis, puberulous on nodes; bracts and bracteoles deciduous; bracteole linear-lanceolate, 1 mm long, brown-pubescent. Flowers small, greenish-yellow, 6–13 × 2.5 mm; pedicels 4–10 mm long, sparsely puberulous; perianth lobes 6, orbicular-ovate, acute, thin, tri-nerved, punctate, membranaceous, margin hyaline and ciliate, densely pubescent on inner surface, sparsely puberulous on

outer surface; outer ones 2 × 1.5 mm, inner ones 2 × 2 mm. Fertile stamens 9 in three whorls, 1.3 mm long in 1st whorl, 1.4 mm long in 2nd whorl and 1.5 mm long in 3rd whorl; filaments complanate, thin, narrow, puberulous outside in 1st and 2nd whorl, those of 3rd whorl each with 2 shortly stalked or sessile orbicular-cordate glands, attached slightly above the base of filaments, others eglandular; anther lobes of the 1st & 2nd whorl ovate, obtuse, 0.6 mm long, 4 introrse cells and those of the 3rd whorl broadly ovate, truncate at apex, with 2 extrorse cells. Staminodes minute, sagittate, 1 mm long, sparsely villous at base. Ovary ovate, 0.8 mm long, glabrous, attenuate into c. 0.5 mm long style; stigma peltate, 3-lobed. Fruit ellipsoid, 1.8–3 × 0.8–1.4 cm, fleshy, smooth, glossy, apex obtuse, black on maturity; fruiting pedicel fleshy, obconical, 8–12 mm long, 4 mm at apex, slightly curved, greenish, nearly cylindrical, minutely lenticellate, glabrous. Seeds ellipsoid, 22 × 9 mm long, greenish-yellow, smooth.

Flowering and Fruiting: March – August

Ecology: Evergreen forests at an altitude range from 800 m to 1200 m.

Distribution: So far known only from the evergreen forests of Malabar Wildlife Sanctuary Kakkayam, Kerala. The new variety is scattered in the sanctuary and its area of occupancy is restricted to some pockets.

Etymology: The varietal epithet is named after the type locality Malabar Wildlife Sanctuary, Kerala, India

Conservation status: As per the IUCN guidelines version 4 (IUCN, 2012), the variety is Data Deficient (DD), since only few individuals could be located on



Malabar Wildlife Sanctuary and adjacent Banasura forests of Wayanad. Further studies and explorations in the adjacent areas are essential to ascertain the status of this species.

Notes: The new variety is unique, by its 2-celled third whorl of stamens and smaller leaves when compared to other Indian species. The *Persea* group is monophyletic (Rohwer, 2000; Chanderbali *et al.*, 2001; Rohwer & Rudolph, 2005), but the generic delimitation between the group is controversial. Kopp (1966) made extensive studies on the varying number of pollen sacs in the different androecial whorls within the same flower and even a variable number of pollen sacs in the stamens of the third whorl of *Persea urbaniana* Mez. But, later studies revealed that number of pollen sacs is not sufficient to distinguish genera, and may sometimes vary within species (Rohwer *et al.*, 1991; Chanderbali *et al.*, 2001; Li *et al.*, 2004).

Paratype:—INDIA. Kerala: Kozhikkode District, Malabar Wildlife Sanctuary, 26 March 2008, *P.S. Udayan* 04912 (flowers) (CMPR!). *ibid.*, ± 850 m, 06 July 2011, *A. J. Robi* & *P.S. Udayan* 26507 (fruits) (KFRI!, TAI!).

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