

Rediscovery of *Elaeocarpus gausсенii* Weibel: a little known endemic tree of the Western Ghats of Tamil Nadu, India

Elaeocarpus, the largest genus of the family Elaeocarpaceae, has 350 species across the world, from Madagascar in the west to Hawaii in the east. In India, the genus is represented by 25 species and is mostly confined to the North East and southern India¹. They generally prefer to grow in warm and humid climate, and occur between 500 and 2000 m amsl. The fruits of most of the species of *Elaeocarpus* are edible and their seeds are used as beads for rosaries and bracelets. Further, they are purported to have magico-religious properties². Members of Elaeocarpaceae possess indolizidine alkaloids, which have the ability to inhibit the enzymatic activity of glucosidases. Hence, it has some potential in the treatment of cancer and diabetes³. Though the members are widely distributed, they are never found in abundance in any particular locality⁴.

The Western Ghats of peninsular India has 12 species of *Elaeocarpus*, with 6 endemic species. Among these endemics, three species have restricted geographical distribution within the Western Ghats, Tamil Nadu, India, viz. *Elaeocarpus blascoi* to Palni hills, *E. gausсенii* to Megamalai hills and *E. venustus* to Agasthyamalai hills. *E. blascoi* and *E. gausсенii* were known only from their type collection. Recently, *E. blascoi* was rediscovered by Vijayan *et al.*⁵. Until now, there has been no report on the occurrence of *E. gausсенii* after its type collection. During a field exploration trip of forest areas of Megamalai hills, a medium-sized *Elaeocarpus* tree at flowering stage with small pendulous flowers was located. Detailed morphological studies on the floral parts, helped identify the species as *E. gausсенii*. The species was reported only by the type specimen. After a long gap of 47 years, it has been rediscovered from the Megamalai hills.

Elaeocarpus gausсенii Weibel. *Candollea* 27(1): 15–19 (1972).

Type: Theni District, High Wavy Tamil Nadu, India, Alt: 1500 m amsl, 10 April 1969. Blasco 1677 (Isotype: K000675991).

Tree, 15–20 m tall, old tree buttressed at base. Bark deep red when cut. Branchlets sparse to medium to dense, short, straight, closely adpressed hairs.

Petioles 6–9 mm long, glabrous or with sparse, short, straight, closely adpressed hairs, not verrucose, without pegs or teeth at apex. Leaves ovate to obovate, 4.5–8 × 2.5–4 cm, apex broadly obtuse, blunt point, base cuneate, blade with very sparse, short, straight, closely adpressed hairs beneath, verrucose throughout or not verrucose; midvein and main veins neither prominent nor impressed above, prominent beneath; main veins 3–4 pairs at 40°–60° to midvein, breaking up one-quarter to halfway inside margin; domantia regularly present along midvein; margin obviously serrate, less serrate in lower half, leaf teeth

3–12 mm apart. Inflorescence racemose, auxiliary, behind the leaves, scattered or condensed towards twig tip, rachis apices not overtopping uppermost leaves, 5–9 cm long, with sparse, adpressed or semi-adpressed hairs. Flowers 15–33 per inflorescence, 4 mm long, bracts early caducous, oblanceolate to ovate-elliptic, 1 mm long, bracteoles absent, pedicel 4–4.5 mm, flower buds ovoid, acute at apex. Sepals 4 mm long, deep red coloured, sparse, short, wavy adpressed hairs, verrucose, inner surface sparsely hairy or with few hairs towards base. Petals white, 4–4.5 mm × 1.5–3 mm, with 14–16 apical division, surface

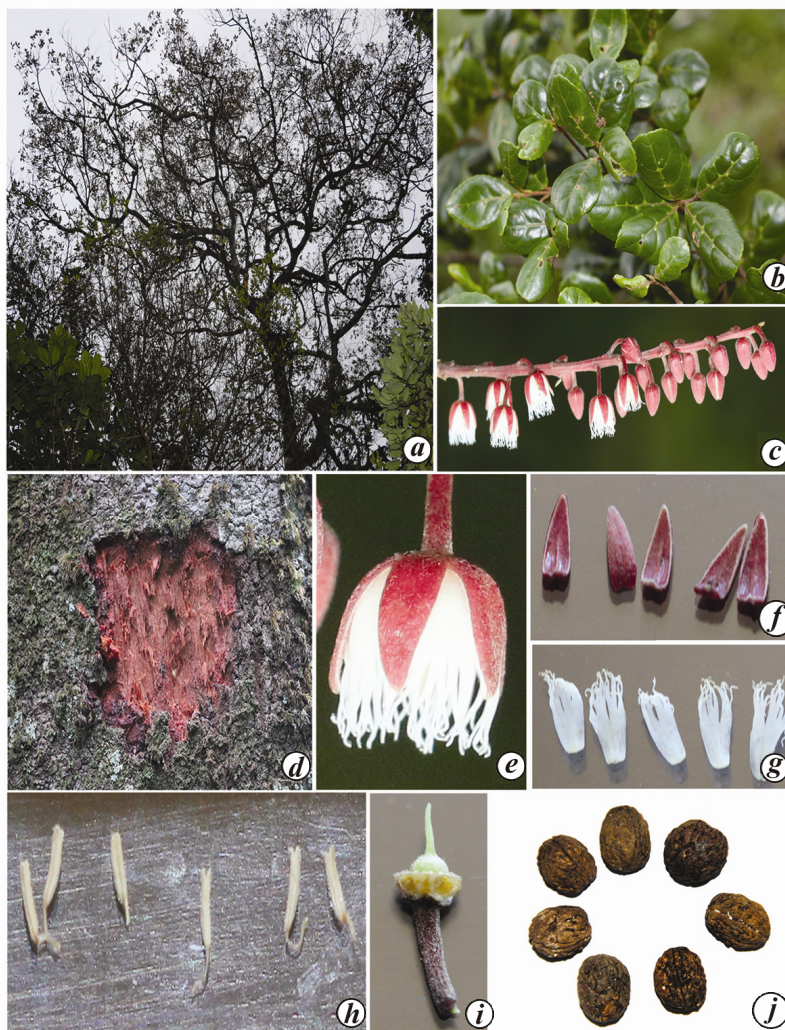


Figure 1. *a*, Medium-sized tree; *b*, Branch of leaves; *c*, Inflorescence; *d*, Tree trunk showing red colour on removing bark; *e*, Flower; *f*, Sepals; *g*, Petals; *h*, Anthers; *i*, Ovary with style; *j*, Seeds.

Table 1. Comparative morphological variation of three closely allied species of *Elaeocarpus*

Morphological characters	<i>E. gaussenii</i>	<i>E. serratus</i>	<i>E. variabilis</i>
Leaf apex	Blunt end	Acute	Acute
Petals with number of division	14–16 apical division	24–30 apical division	24–30 apical division
Number of stamens	12–20	22–35	30–40
Seeds	Ovoid to slightly ellipsoid with a blunt end	Ellipsoid with a pointed end	Obovoid to ellipsoid with a pointed end

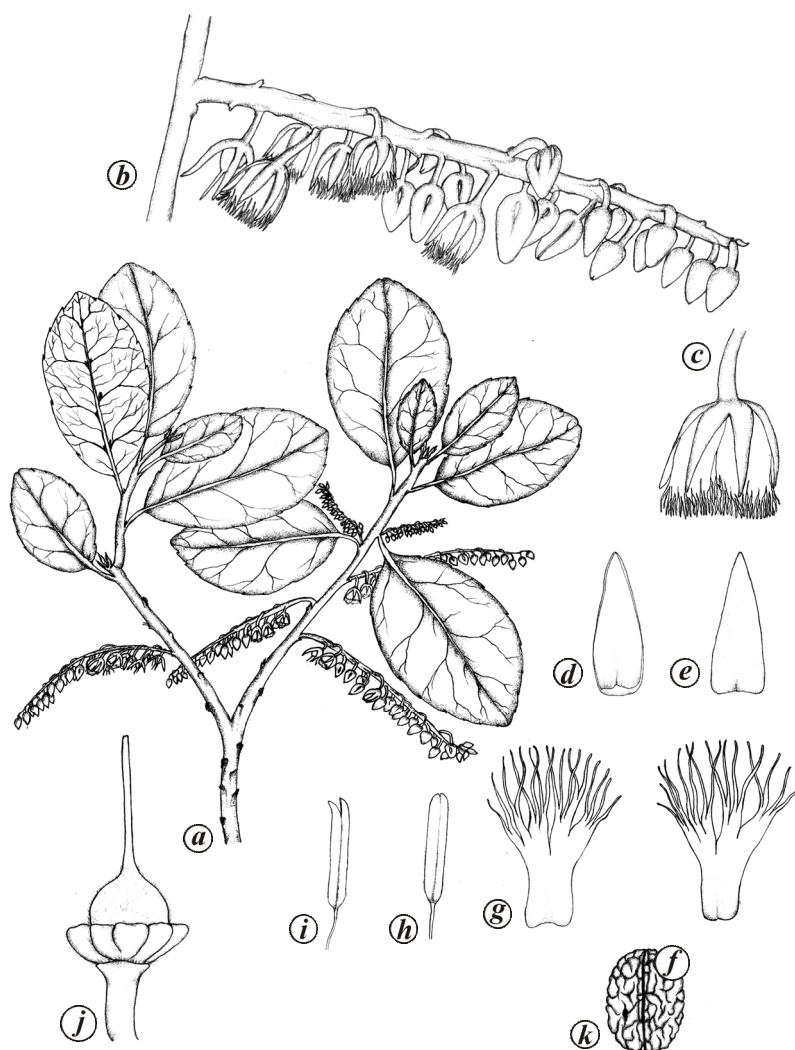


Figure 2. *Elaeocarpus gaussenii*. *a*, Twig with inflorescence; *b*, Inflorescence; *c*, Flower; *d*, *e*, Sepals; *f*, *g*, Petals; *h*, *i*, Anthers; *j*, Ovary with style; *k*, Seed.

glabrous. Disk with fused lobes, 0.6–1 mm, with dense semi-adpressed hairs. Stamens 12–20, anthers 1.5–2 mm long, filament 1 mm long, arista absent. Ovary trilocarpellary rarely tetracarpellary, surrounded by the disk at base, 0.9–1 mm long, surface covered with densely adpressed hairs, style 2–2.5 mm long. Fruit drupe, 2.5 cm long, broadly ellipsoid to ovoid, apex rounded with or without

apical point; base rounded, skin smooth to slightly knobbly, dark green when ripen. Seed ovoid to ellipsoid, 2–2.5 cm long, surface rugose to slightly sculptured, sutures obviously defined, seed coat 5 mm thick (Figure 1).

Habitat and distribution: Small to medium-sized evergreen tree distributed in the tropical moist evergreen forest of Megamalai hills at an altitude of above

1500 m amsl. Blasco (1969) collected the type specimen from High Ways, Theni district (formerly Madurai district), Tamil Nadu. The present collection is from the same hill ranges within 10 km of the type locality.

Specimen examined: K000675991 (on-line image), High wavy, Blasco, 10 April 1969; K000675992 (on-line image), High wavy, Blasco, 13 September

1969; K000675993 (on-line image), High wavys, Blasco, 13 September 1969; GU0510, Megamalai hills (09°41'05.91"N 77°22'57.72"E, 1579 m amsl), Theni district, Tamil Nadu. D. Felix Irudhyaraj and R. Ramasubbu, 10 October 2015; GU0761 Megamalai hills (09°41'05.91"N, 77°22'57.72"E, 1579 m amsl), Theni district, Tamil Nadu. D. Felix Irudhyaraj and R. Ramasubbu, 25 September 2016.

Flowering: September–November.

Fruiting: December–January.

Remarks: Being a closely associated species, it is difficult to distinguish *E. gausseii* from *E. serratus* and *E. variabilis*. Zmarzty⁶ described *E. gausseii* based on the herbarium without detailed analysis of floral features. The present study has confirmed the distinct characters to identify the said tree species as *E. gausseii* from the other two species (Table 1).

Due to non-availability of the specimen to the field researchers for the past five decades, *E. gausseii* has been

included in IUCN Red List categories as Critically Endangered⁷. During the present exploration, a small population with five mature individuals of *E. gausseii* was rediscovered inside small forest patches of about 2–3 ha. However, the habitat of the trees has been completely covered by the surrounding tea estate.

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