Rediscovery of *Elaeocarpus gaussenii* 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
distinctive genepool in the North and central India. They generally prefer to
inhabit the habit of the species *Elaeocarpus* are edible and their seeds
are used as beads for rosaries and bracelet. Further, they are purported to have
magico-religious properties. Members of *Elaeocarpus* 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 diabetes. Though the members are widely distributed, they are never found in abundance
in any particular locality.

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. gaussenii* to Megamalai hills and *E. venustus* to Agasthyamalai hills. *E. blascoi* and *E. gaussenii* were known only from their
type collection. Recently, *E. blascoi* was rediscovered by Vijayan et al. Until now, there has been no report on the
occurrence of *E. gaussenii* 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. gaussenii*. 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 gaussenii* Weibel. Can-

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
sparsely 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 ad-
pressed hairs beneath, verrucose
throughout or not verrucose; midvein and
main veins 3–4 pairs at 40°–60° to midvein,
break up one-quarter to halfway inside
margin; domanita regularly present
along midvein; margin obviously serrate,
less serrate in lower half, leaf teeth
3–12 mm apart. Inflorescence racemose,
axillary, 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 col-
oured, 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*

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

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 tricarpellary 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 ripe. 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 ways, Blasco, 10 April 1969; K000675992 (on-line image), High ways, Blasco, 13 September.

Remarks: Being a closely associated species, it is difficult to distinguish E. gaussenii from E. serratus and E. variabilis. Zmarzty described E. gaussenii 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. gaussenii from the other two species (Table 1).

Due to non-availability of the specimen to the field researchers for the past five decades, E. gaussenii has been included in IUCN Red List categories as Critically Endangered. During the present exploration, a small population with five mature individuals of E. gaussenii 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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