



Eugenia megamalayana sp. nov. (Myrtaceae)- A new species from the Western Ghats, India

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ABSTRACT: *Eugenia megamalayana* sp. nov., is described and illustrated as a new species from the Western Ghats, Tamil Nadu, India. It is very closely allied to *Eugenia calcadensis* Bedd. but differs in habit, leaf, floral and fruit characters. The comparison of the two species is tabulated here.

KEY WORDS: *Eugenia*, India, Myrtaceae, New species, Western Ghats.

INTRODUCTION

The family Myrtaceae were revised by Duthie (1879) in Flora of British India, where 134 native species were enumerated with the four genera, it remains the only thorough revision of Indian Myrtaceae. The largest genus *Eugenia* Linnaeus (1753: 470), with 131 Indian species, has been split into genera *Eugenia* and *Syzygium* Gaertner (1788: 166), in that majority of Indian species currently placed in the *Syzygium*. Several authors implemented a broad concept of *Eugenia*, including Bentham & Hooker (1865), Duthie (1879) and Henderson (1949), in which *Syzygium* was considered to be a section.

The division between *Eugenia* and *Syzygium*, Indian species are usually easily placed in one of the genera. *Eugenia* in India as presently known by most authors, are characterized by commonly tomentose branchlets (at least when younger) including leaves and inflorescences; clearly shows pedicellate axillary flowers; and persistent bracteoles and calyx lobes in fruit. In contrast, the branchlets, leaves and inflorescences are always glabrous in *Syzygium*; its flowers are in terminal or axillary inflorescences with reduced to base (Duthie (1879, Balakrishnan 1981, Deb 1981, Haridasan & Rao 1985, Kulkarni 2001, Mohanan & Sivadasan 2002, Nayar *et al.* 2006, 2014 and Shareef *et al.*, 2011).

During plant exploration in the Western Ghats of India, the authors collected an unidentified *Eugenia* specimen from the Megamalai Wildlife Sanctuary, Theni district of Tamil Nadu. After critical studies, perusal of literature (Duthie, 1879; Murugan, 2002; Gopalan and Srinivasan, 2003; Santhosh Kumar and Yeragi, 2003; Murugan and Gopalan, 2005; Gopalan and Murugan, 2008; Shareef *et al.*, 2011) and consulting the type specimens of different national and international herbaria like CAL, MH, BM, G, K, P. it described here as a new species. It was found in very rare in the Coffee plantation of M/s Amman Estate, Vellimalai West beat

of Megamalai Wildlife Sanctuary. Taxonomic comparison with closely allied species is provided in Table 1.

This species very closely allied to *Eugenia calcadensis* Bedd. (1872: cx), but the new species differs from the morphological characters like flower size, inflorescence and large fruits. The recently 2015 Byng *et al.* clarified the nomenclature problems of Indian Myrtaceae and large number of species lectotyped including *E. calcadensis* Bedd.

The *E. calcadensis* is transferred to *Syzygium* by Chandrabose in studies on the Flora of Nilgiris in Tamil Nadu by Sharma *et al.* (1977). But the important characters to differentiate these two genera leaves hairy at least when young and has the axillary inflorescences that are typical of *Eugenia* characters. *E. calcadensis* shows the above *Eugenia* characters. No type specimen was designated in the protologue and of the two specimens in Beddome's herbarium at BM, the *E. calcadensis* is recently lectotyped and transferred to original genus by Byng *et al.* 2015.

TAXONOMIC TREATMENT

Eugenia megamalayana Murugan & Arum., *sp. nov.*

Figs. 1 & 2

Type: INDIA, Tamil Nadu, Theni Distr., Megamalai Wildlife Sanctuary, Vellimalai West Beat, on the way to Amman Estate, Jun. 17, 2017, 9°32.748'N 77°12.845'E 1422 m, C. Murugan & S. Arumugam 134871 (Holotype CAL!; Isotype MH!).

Trees, up to 25 m; branchlets subterete or slightly compressed, fulvous tomentose; internode 1.5–3 cm long. Leaves opposite, simple, ovate-oblongate, 7–12.5×3.5–4.5 cm, acuminate at apex, margin entire, not revolute, rounded at base, chartaceous, fulvous tomentose when young, later glabrescent; midrib prominent beneath with fulvous tomentose, grooved above; lateral veins 8–12 pairs, less prominent; petioles

**Table 1.** Distinguish characters between *Eugenia calcadensis* Bedd. and *E. megamalayana* sp.nov.

Characters	<i>Eugenia calcadensis</i>	<i>Eugenia megamalayana</i>
Habit	small tree, up to 10 m high	large tree, up to 25 m high
Branchlets	rusty pubescent	fulvous tomentose
Leaves	elliptic-oblongate, 5–10 × 2.5–4 cm, coriaceous, cuneate at base, acute at apex, margin revolute, lateral veins 8–10 pairs prominent	ovate-oblongate, 7–12.5×3.5–4.5 cm, chartaceous, rounded at base, acuminate at apex, margin not revolute, lateral veins 8–12 pairs, less prominent.
Petiole	0.8 cm long	1–1.2 cm long
Flowers	1.5–2 cm diam. axillary or binate	ca. 2.5 cm diam. axillary or rarely 3-flowered terminal racemes
Pedicels	2–3 cm long	0.7–1. c m long
Bracts	linear-subulate, ca. 0.5 cm long	linear, 0.5 cm long
Calyx lobes	orbicular, 0.4–0.6 cm diam.	ovate, 0.5–0.7 cm diam.
Disc	sub-orbicular, wooly	quadrangular, grey pubescent
Petals	margin ciliate	margin silky
Stamens	unequal, 0.5–1.1 cm long	unequal 0.5–1.5 cm long

1–1.2 cm long, fulvous tomentose, rounded beneath, flat above; exstipulate. Flowers ca. 2.5 cm diam., white, solitary, axillary or rarely 3-flowered terminal racemes to 2 cm long; peduncle 1–1.5 cm long, fulvous tomentose; pedicels stout 0.7–1 cm long, terete, fulvous tomentose; bracts linear, 0.4–0.5 cm long; bracteoles linear, 0.4–0.7 cm long, fulvous tomentose. Calyx tube obconic, adnate to ovary, fulvous tomentose; lobes 4, subequal, ovate, 0.5–0.7 cm diam., fulvous hairy at adaxial, silky and white glandulate at abaxial. Petals 4, orbicular, ca. 1.2 cm diam., slightly clawed at base, margin silky, rounded at apex, silky at adaxial, glabrous at abaxial. Disc flat, quadrangular, hairy, 0.5–0.7 cm diam., glandulate. Stamens many, unequal, 0.5–1.5 cm long; filaments filiform, 0.5–1.5 cm long; anthers ovate, 2-celled, ca. 0.15 cm diam., versatile. Ovary globose, 2-celled, ca. 0.5 cm diam.; ovules 10–15, axile placentation; style subulate, ca. 1.2 cm long; stigma simple, acute at apex. Drupes globose, ca. 1.5 cm diam., fulvous tomentose with persistent calyx; seeds mostly 1 rarely 2, ovoid, ca. 1 cm diam., all damaged by insect before ripen.

Flowering & Fruiting: June – February.

Ecology: This new species is hitherto known only from the type locality. Here it grows as big trees between 1100 m and 1500 m asl. The main associated species are, *Acrocarpus fraxinifolius* Arn., *Artocarpus heterophyllus* Lam., *Bischofia javanica* Blume, *Chukrasia tabularis* A. Juss. and *Coffea* sp. the coffee plantation.

Etymology: The specific epithet is derived from the type locality Megamalai Wildlife Sanctuary, a potential area for plant diversity.

Conservation status: Since only three individuals were seen in the coffee plantation of dry forest areas, the new taxon is assigned here as a “Critically Endangered” [CR A3c] following the IUCN Red List Categories and Criteria (IUCN 2012) due to preliminary risk of extinction.

Paratype: INDIA, Tamil Nadu, Theni Distr., Megamalai Wildlife Sanctuary, Vellimalai West Beat, on the way to Amman Estate, Feb. 14, 2018, 9°32.811'N 77°22.378'E, 1422 m, C. Murugan & S. Arumugam 138641 (MH).

Key to the *Eugenia* in India

- 1a. Leaves silvery-pubescent beneath *E. argentea*
- 1b. Leaves not silvery-pubescent beneath 2
- 2a. Flowers sessile 3
- 2b. Flowers pedicelled 4
- 3a. Bracts linear; calyx-lobes longer than the petals *E. macrosepala*
- 3b. Bracteoles ovate; calyx-lobes shorter than the petals
..... *E. cotinifolia* ssp. *codyensis*
- 4a. Flowers in racemes *E. singampattiana*
- 4b. Flowers solitary or in fascicles 5
- 5a. Fruits ribbed *E. uniflora*
- 5b. Fruits not ribbed 6
- 6a. Branchlets entirely glabrous 7
- 6b. Branchlets pubescent or floccose 8
- 7a. Leaves spatulate-obovate *E. mabaeoides*
- 7b. Leaves ovate-lanceolate to elliptic *E. thwaitesii*
- 8a. Leaves floccose *E. floccosa*
- 8b. Leaves not floccose 9
- 9a. Staminal disk broad and conspicuous 10
- 9b. Staminal disk not conspicuous 18
- 10a. Flowers 1.5–2.5 cm across 11
- 10b. Flowers at most 1 cm across 14
- 11a. Leaves rounded at base *E. megamalayana*
- 11b. Leaves cuneate at base 12
- 12a. Flowers axillary; petals ciliate 13
- 12b. Flowers supra-axillary; petals eciliate *E. shettyana*
- 13a. Leaves obovate, abruptly acuminate at apex *E. seithurensis*
- 13b. Leaves oblanceolate, obtuse/ acute at apex *E. calcadensis*
- 14a. Calyx lobes acute at apex *E. terpnophylla*
- 14b. Calyx lobes rounded at apex 15
- 15a. Leaves oblanceolate, coriaceous *E. indica*
- 15b. Leaves spatulate/ elliptic/obovate 16
- 16a. Pedicels < 5 mm long, stout *E. discifera*
- 16b. Pedicels > 5mm long, slender 17
- 17a. Petiole <5 mm long *E. manickamiana*
- 17b. Petiole 7–10 mm long *E. agasthiamalayana*
- 18a. Leaves at least 1.8 cm wide *E. rothii*
- 18b. Leaves at most 1.2 cm wide *E. rotlieriana*

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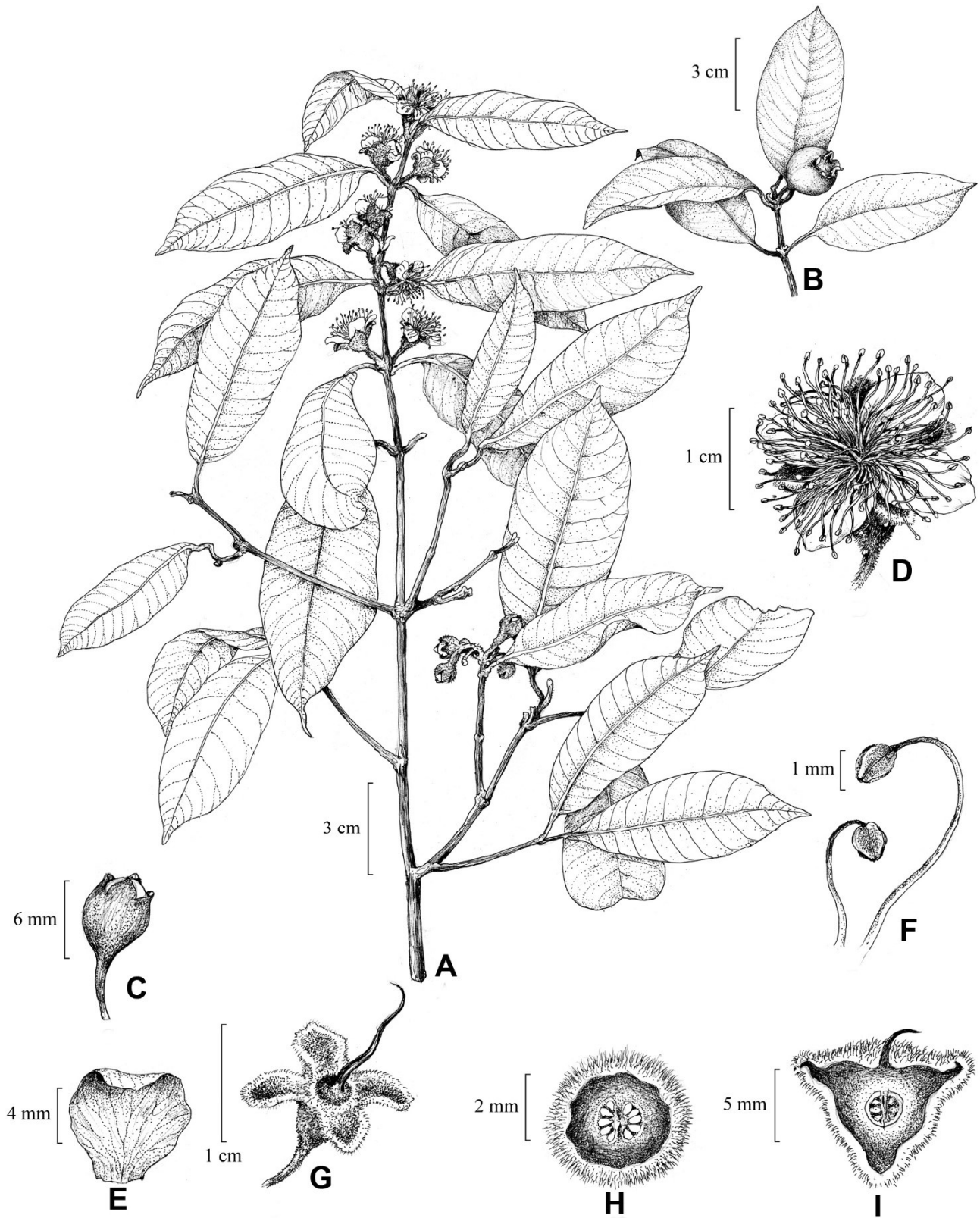


Fig. 1. *Eugenia megamalayana* Murugan & Arum, sp. nov. (Myrtaceae). **A.** Flowering twig; **B.** Fruiting twig; **C.** Flower bud; **D.** Flower; **E.** Petal; **F.** Stamens; **G.** Pistil with calyx; **H-I.** Ovary (C.S. & L.S.)

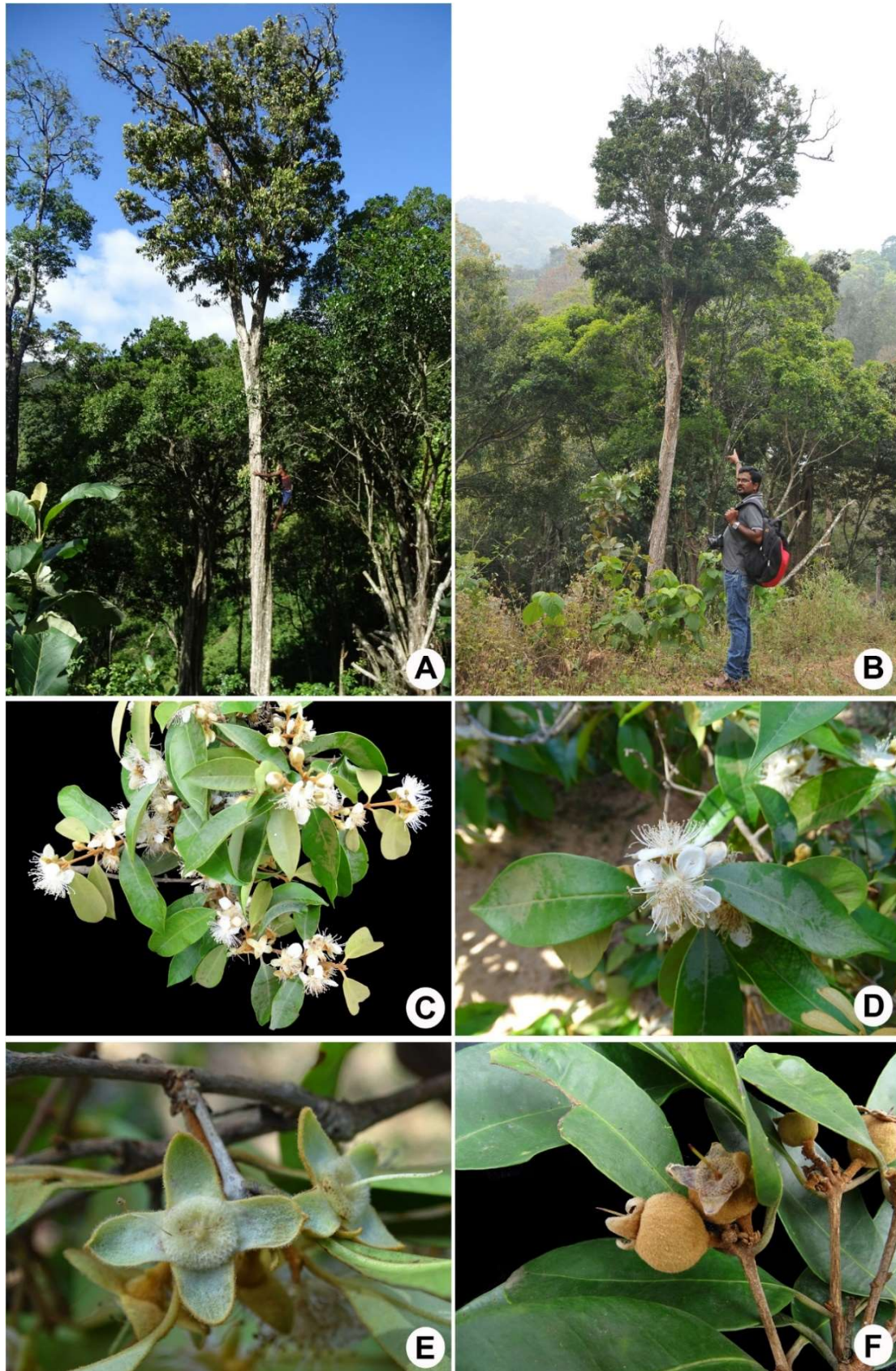


Fig. 2. *Eugenia megamalayana* Murugan & Arum. sp. nov. A-B. Habit; C-D. Flowering Twigs; E. Pistil without Petals; F. Fruiting Twig.



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