



Coleus anthonyi (Lamiaceae): a new species from South Western Ghats, India

Jebin Joseph¹, Jose Mathew^{2,✉}, Kadakasseril V. George¹

¹Post Graduate and Research Department of Botany, St. Berchmans College, Changanassery, IN – 686101 Kottayam, Kerala, India

²Department of Botany, Sanatana Dharma College, Alappuzha, IN - 688003, Alappuzha, Kerala, India

✉ **Corresponding author:**

Department of Botany, Sanatana Dharma College, Alappuzha, IN - 688003, Alappuzha, Kerala, India

Email: josemathew@sdcollege.in

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ABSTRACT

A new species of *Coleus* (Lamiaceae: Ocimeae: Plectranthinae), *C. anthonyi*, from the South Western Ghats region of India is described. Detailed taxonomic description, colour photographs, illustration, status and key to the allied species of the new taxon are provided.

Keywords: New species, *Coelus*, Kerala, Western Ghats

1. INTRODUCTION

Coleus Loureiro is an old world tropical distributed genus having more than 450 species (Paton *et al.*, 2018). Recent phylogenetical and nomenclature studies on Subtribe *Plectranthinae* has resulted in the generic delimitation and inclusion of *Anisochilus* Wallich ex

Bentham to *Coleus* (Paton *et al.*, 2018; 2019). This genus consists of annual or perennial herbs or shrubs and can be recognized by its 5 lobed calyx (1 upper, 4 lower) with pedicel attached asymmetrically to the base of calyx tube, opposite the posterior lip and usually, corolla with upper lip shorter than lower. The genus occurs in montane forests, shola and grasslands of Western Ghats are the probable centre of distribution of *Coleus*. Recent discoveries viz., *C. achankoviliensis* Smitha & A.J.Patron ; *C. anamudianus* (Smitha & Sunojk.) Smitha ; *C. idukkianus* (J.Mathew, Yohannan & B.J.Conn) Smitha; *C. kanyakumariensis* (Shinoj & Sunojk.) Smitha; *C. petricola* (J.Mathew & B.J.Conn) A.J.Paton; *C. saxorum* (J.Mathew, Yohannan & B.J.Conn) Smitha and *C. shoolamudianus* (Sunil & Naveen Kum.) Smitha & A.J.Paton from this area require intensive taxonomic and explorative studies of the genus. (Paton *et al.* 2019).

Botanical exploration of Thiruvananthapuram District of south Western Ghats, during 2018–2019, yielded some interesting specimens of the genus *Coleus* (subgenus *Anisochilus*). Critical analysis of the literature (Gamble, 1924; Sasidharan, 2013; Smitha, 2017), recent scientific papers (Paton *et al.*, 2019; Mathew *et al.*, 2017a; b; Smitha & Sunojkumar, 2018) as well as of herbarium specimens availed at MH, CAL, TBGT and CUBH revealed that these collected specimens do not match any of the previously described species. And here it is described as a new species.

2. *COLEUS ANTHONYI* JEBIN JOSEPH & J.MATHEW, *SP. NOV* (Fig. 1 – 2)

TYPE: India. Kerala, Thiruvananthapuram District, Neyar Dam, Way to Dam top, altitude 750 m a. s. l., 13 July 2018, *Jebin 11* (holotype: MH ; isotype: RHK (Regional Herbarium of Kerala, SB College, Chanaganassery, Kerala).

Etymology: The specific epithet '*anthonyi*' honors Dr. Antony V.T., a renowned educator and environmentalist, in recognition of his valuable contributions to research on plant taxonomy and ecology.

Diagnosis: *Coleus anthonyi* is similar to *C. scaber* (Benth.) A.J.Paton, in morphology and sharing same ecological preferences, but differs its exceptional dwarf, prostrate growth habit of up to 30 cm in height with cylindrical outline (compared to erect growth of *C. scaber* that are up to 50 cm high and quadrangular shape), short petioled leaves of size up to 10 mm long (vs comparatively larger petiole of 20 mm long in *C. scaber*), red coloured eglandular hairs in leaf teeth at abaxial sides (vs green coloured hairs in *C. scaber*), long inflorescence with 3–5 spikes and leafy bracteate peduncle (vs unbranched, short inflorescence (very rarely branching; if present, 3 spikes only) and non leafy bracts present in *C. scaber*), flowers with pink moltings (vs flowers with purple colour), and calyx hairs present only on the collar (vs villous calyx in *C. scaber*).

Dwarf, branched, perennial subprostrate herb, slightly woody basally (bark pink), up to 30 cm tall and spreading. Stem succulent, moderately spreading, cylindrical, c. 15 mm diam.; internodes 10–700 mm long; eglandular hairs 10–celled, up to 2 mm long; stalked glands much shorter. Leaves pleasantly aromatic (when crushed), simple, opposite, decussate, petiolate; petiole up to 10 mm long and 3 mm diam., fleshy, with divaricated 5–8-celled hairs; lamina broadly ovate, succulent, 34–75 mm long, 24–40 mm wide; red sessile glands beneath, base rounded; margin crenate with 9–14 teeth on each side of margin (mature leaves), secondary teeth absent; apex rounded to subacute; abaxial surface silver-green, veins raised 6 or 7 pairs, with dense eglandular hairs c. 0.7 mm long and glandular hairs c. 0.4 mm long; adaxial surface olive-coloured (greenish), veins impressed, with dense eglandular hairs 2 mm long and glandular hairs 0.5 mm long, red coloured eglandular hairs margined the crenation at abaxial sides. Inflorescence terminal with leafy bracts (8–9 mm long), upto 600 mm long, simple panicle with 2–5 spikes, heads ovoid to ovoid-cylindric in bud and fruit; axis slender, round, with 0.9 mm long eglandular hairs and 0.4 mm long glandular hairs; floral internodes 2–4 mm long, side peduncle 10–20 mm long, hairy, pedicel slender, 2–3 mm long (not enlarged in fruit), pubescent. Calyx deep purple to pink, campanulate, c. 3–4 mm long, c. 2–3 mm diam. (enlarged in fruit: 0.5–0.7 cm long, 0.3–0.4 cm diam.), with hairs on collar (outer surface) and ring of hairs in the inner calyx; posterior lip one lobed, ovate, deflexed after anthesis; abaxial (anterior) lobes rounded, 1.7–2 mm long, not toothed, purplish hairs on fruiting calyx. Corolla 11–12.5 mm long, c. 5 mm diam., pale pink, pubescent; tube 5–6 mm long, sigmoid below middle, gradually dilated towards base, widely expanded at throat, inner surface glabrous; abaxial (anterior) lip with purple moltings, ovate, boat-shaped, 5 mm long, concave, simple hairs present on adaxial surface, with red sessile glands on lower side; adaxial lip 4-lobed, rounded at tip, villose, median lobes (0.3 cm long, 0.2 cm wide) larger than lateral lobes (2 mm long, 1 mm wide). Stamens 4, adaxial pair attached just below abaxial pair but not united; filaments included in abaxial (anterior) corolla lip, filaments of abaxial two of a kind 0.5 cm long, those of adaxial pair 4 mm long; no appendages; anthers bilobed, dorsifixed, c.0.1 cm long, blue in clour. Style filiform, with stigmatic lobes (2) pointed and pressed together. Mericarps suborbicular, c. 1 mm long, c. 1 mm diam., brownish, smooth.

Flowering and fruiting recorded in July–October



Figure 1. *Coleus anthonyi* Jebin Joseph & J.Mathew sp. nov. – **A:** Flowering plants in habitat. – **B:** Central spike of inflorescence. – **C:** Petiole. – **D:** Leafy bract on peduncle. – **E:** Pink coloured eglandular hairs in the abaxial side of leaf. – **F & G:** Leaf. – **H & I:** Calyx lobes. – **J & K:** Corolla lobes. – **L:** Anther. – **M:** Gynecium. – **N:** Young seeds.

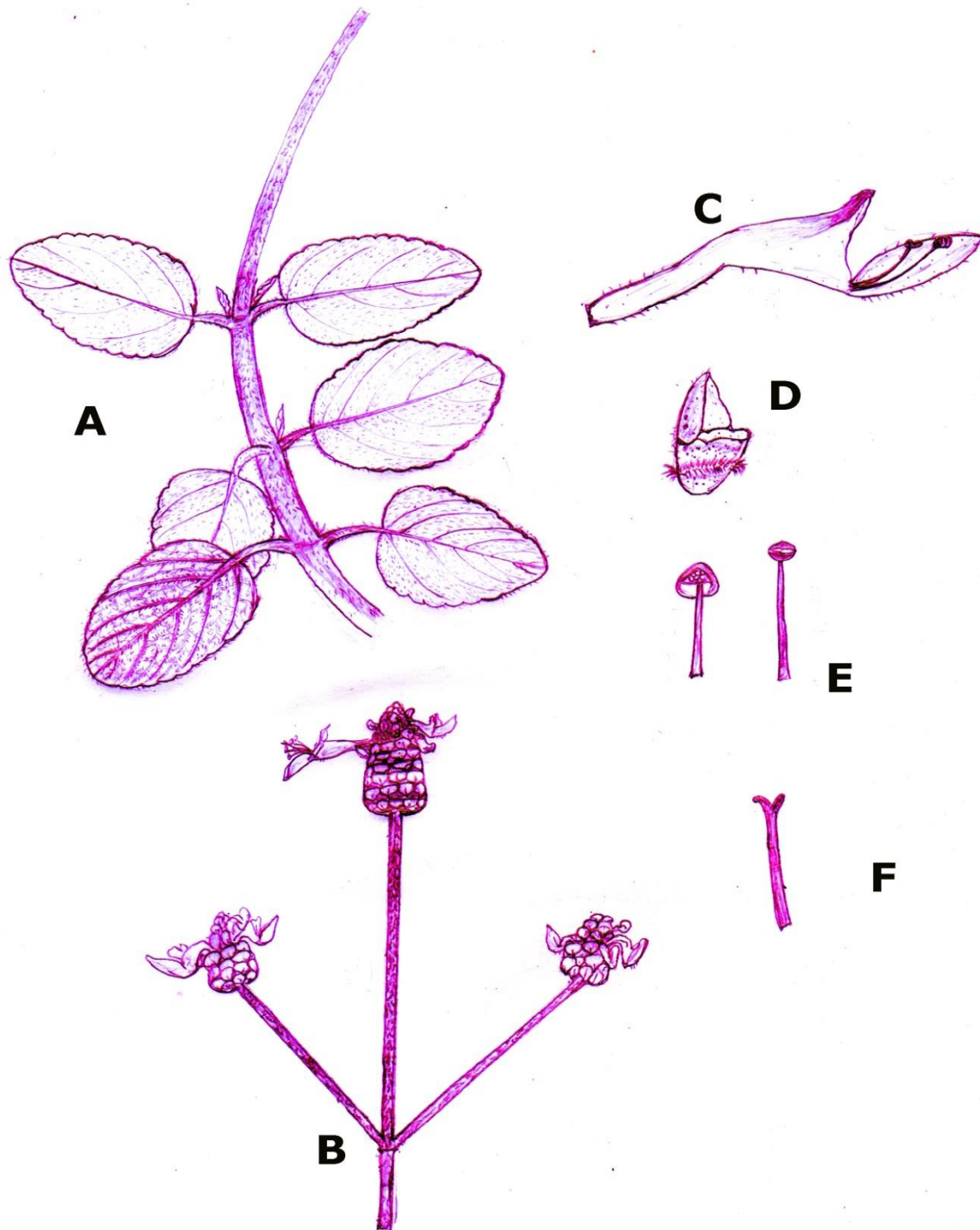


Figure 2. *Coleus anthonyi* Jebin Joseph & J.Mathew sp. nova. – **A:** Plant twig with peduncle. – **B:** Branched inflorescence. – **C:** Flower. – **D:** Calyx with hairs on collar. – **E:** Stamens. – **F:** Stigma.

Distribution and Habitat: Found in moist rocks in shola margins at elevations of 750 m, in Neyyar forests of Western Ghats, India. This species grows in the crevices of rocks and leaf litter in association with *Cyanotis fasciculata* (Heyne ex Roth) Schultes, *Opuntia vulgaris* Miller, *Parasopubia delphiniifolia* Hofmann & Fischer and *Medinilla beddomei* Clarke.

Additional specimens examined: India. Kerala, Thiruvananthapuram District, Neyyar Dam, Way to Dam top, altitude 750 m a. s. l., 11 September 2019, *Jebin 0013-0015* (KUBH- Kerala University Botany Herbarium, Kerala).

CONSERVATION STATUS: The conservation status of this taxon is data deficient. However the distribution is limited with only a few plants observed at the three known locations (each with c. 25–75 plants in 3 km²). Further study of this species is needed; field work would need to be conducted from July to October when the monsoon season starts and plants are flowering.

Key to allied taxa (former *Anisochilus* genus) of *Coleus anthonyi* in Kerala part of Western Ghats (modified on Mathew *et al*, 2017b)

1. Posterior lip of calyx 1-lobed, 4-lobed anterior lip 2
- 1: Posterior lip of calyx 3- or 1- lobed, 2-lobed anterior lip or obscure..... 6
2. Leaves with margin serrate throughout3
- 2: Leaves with margin distally serrate *C. achankoviliensis*
3. Leaf base usually cordate, rarely truncate; 3° venation obscure in abaxial side *C. carnosus*
- 3: Leaf base rounded or obtuse; 3° venation prominent in abaxial side4
- 4: Spike ovoid to ovoid cylindrical; fruiting calyx tube purplish brown villous5
- 4: Spike long and narrower cylindrical; fruiting calyx tube white villous *C. wightii*
5. Hairs on calyx lobes throughout.....*C. scaber*
- 5: Hairs on calyx lobes restricted in collar.....*C. anthonyii*
6. Leaves opposite and decussate 7
- 6: Leaves whorled, rarely opposite at stem base 9
7. Leaves broadly ovate or orbicular-ovate; more than 40 mm wide *C. robustus*
- 7: Leaves narrower, ovate, elliptic-ovate; not more than 25 mm wide 8
8. Leaves congested at top of the branch, 2° venation prominent in abaxial side *C. suffruticosus*
- 8: Leaves arranged along stem, not crowded, 2° venation not predominantly raised in abaxial side *C. dysophylloides*
9. Stem longitudinally grooved; leaves more than 25 mm long *C. adenanthus*
- 9: Stem not longitudinally grooved; leaves not more than 20 mm long10
10. Corolla purple with glands red *C. argenteus*
- 10: Corolla white with glands orange *C. shoolamudianus*

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Conflict of interest

The author has no conflict of interest to declare that are relevant to the content of this article.

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Data and materials availability:

All data associated with this study are present in the paper.

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