



Anisochilus petraeus (Lamiaceae), a new species from Southern Western Ghats, India

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(Manuscript received 6 October 2016; accepted 22 March 2017; online published 21 April 2017)

ABSTRACT: A new species of *Anisochilus*, *Anisochilus petraeus* (Lamiaceae) is described based on samples collected in the Achankovil Forests of southern Western Ghats, India. A botanical illustration, photographs of the new taxon, information about the habitat and its conservation status are also provided, including a key to the species of *Anisochilus* from the south Western Ghats.

KEY WORDS: *Anisochilus*, India, Lamiaceae, New species, Southern Western Ghats.

INTRODUCTION

Anisochilus Wallich ex Benth is an Asian genus of the Lamiaceae (tribe Ocimeae and subtribe Plectranthinae) comprising about 17 species of herbs and subshrubs that are distributed in tropical regions of India, Sri Lanka, Himalaya, Myanmar (Burma), South China, Thailand and Indo-China (Somran and Paton, 2009; Harley *et al.* 2004; Sunil *et al.* 2015). Fourteen species of *Anisochilus* have been recorded from India (Harley *et al.* 2004) and nine species (see key for full list) reported from Kerala (Sasidharan, 2013; Sunil *et al.* 2015).

Botanical explorations in the forests of Achankovil, Kollam district in Kerala, part of south Western Ghats, during 2013–2015, yielded some interesting specimens of the genus *Anisochilus*. Critical analysis of the literature (Sasidharan, 2013; Sunil *et al.* 2015) as well as of herbarium specimens revealed that some of the collected specimens do not match the described species. These specimens are considered to be sufficiently distinct to warrant taxonomic recognition as a new species and are here described and illustrated as *Anisochilus petraeus*.

TAXONOMIC TREATMENTS

Key to *Anisochilus* species from the Kerala region of southern Western Ghats

- 1a. Posterior lip of calyx 1-lobed, 4-lobed anterior lip 2
- 1b. Posterior lip of calyx 3- or 1-lobed, 2-lobed anterior lip 5
- 2a. Leaves with margin serrate throughout 3
- 2b. Leaves with margin distally serrate *A. petraeus*
- 3a. Leaf base usually cordate, rarely truncate; tertiary venation obscure beneath *A. carnosus*
- 3b. Leaf base rounded or obtuse; tertiary venation prominent beneath 4
- 4a. Spike ovoid to ovoid cylindrical; fruiting calyx tube purplish

- brown villous *A. scaber*
- 4b. Spike long and narrower cylindrical; fruiting calyx tube white villous *A. wightii*
- 5a. Leaves opposite decussate 6
- 5b. Leaves whorled, rarely opposite at stem base 8
- 6a. Leaves broadly ovate or orbicular-ovate; more than 40 mm wide *A. robustus*
- 6b. Leaves narrower, ovate, elliptic-obovate; not more than 25 mm wide 7
- 7a. Leaves congested at top of the branch, secondary veins prominently raised beneath *A. suffruticosus*
- 7b. Leaves arranged along stem, not crowded, secondary veins not predominantly raised beneath *A. dysophylloides*
- 8a. Stem longitudinally grooved; leaves more than 25 mm long *A. adenanthus*
- 8b. Stem not longitudinally grooved; leaves not more than 20 mm long 9
- 9a. Corolla purple with glands red *A. argenteus*
- 9b. Corolla white with glands orange *A. shoolumadianus*

Anisochilus petraeus J. Mathew & Yohannan, *sp. nov.*

Figs. 1A–F & 2

Similar to *Anisochilus carnosus* (L.f.) Wall. ex Benth., but differing by its exceptional dwarf growth habit of up to 25 cm in size; relatively smaller leaf size upto 25 × 22 mm; unequal and obtuse leaf bases; leaves with distal half of margin serrate; lateral veins of 3 pairs; short peduncle upto 3 cm long and the inflorescence a simple spike of 2.5–3.5 cm long (Table 1).

Type: INDIA: Kerala, Kollam district, 1.5 km from Achankovil town, Achankovil, 9°06'51.03"N, 77°12'08.2"E, altitude 95 m a.s.l., 24 Aug 2013, J. Mathew 4527 (holotype: TBGT!, isotype: MSSRF!).

Erect annual herbs, 20–25 cm tall. Stems fleshy; basal stem with pinkish or purplish tinge, rounded in shape; upper stems green in colour and terete-quadrangular in section, pubescent. Leaves succulent, petiolate, opposite, often with axillary young leaves, ovate or broadly ovate, blades 7–25 × 4–22 mm, base oblique or slightly unequal, margin serrate towards apex or upper half serrated, rounded at apex, fleshy,



Fig. 1. *Anisochilus petraeus* J. Mathew & Yohannan. **A:** In habitat. **B:** Oblique leaf base. **C:** Young inflorescence. **D:** Half serrated leaves. **E & F:** Top view of inflorescence. **G:** Inflorescence of *A. carnosus*. **H:** Habitat of *A. carnosus* (see the cordate leaf base and fully serrated leaf margins).

faintly aromatic, pubescent above and slightly tomentose beneath, lateral veins 3 pair. Petiole up to 6 mm long. Inflorescence terminal and axillary, simple and unbranched, peduncle quadrangular in shape and 1–3 cm long, not branched, green and pubescent. Spike tetragonal with rows of bracts in bud and becoming cylindrical after anthesis, 2.5–3.5 × 1–2 cm in size.

Bracts broadly ovate to lanceolate, pubescent with red sessile glands, 1–3 × 0.7–1 mm. Calyx tubular, pubescent, 3–4 mm long at anthesis, fruiting calyx 4–6 mm, posterior lip one lobed, ovate or ovate lanceolate with sparse red sessile glands; anterior lip is 4-toothed, membranous. Corolla pale purple, 8–12 mm long, sparsely pubescent with scattered red sessile glands;

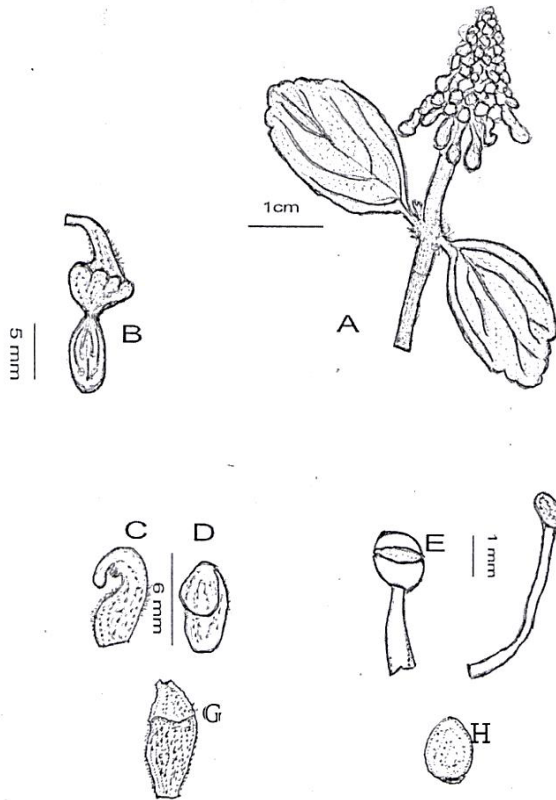


Fig. 2. *Anisochilus petraeus* J.Mathew & Yohannan (A–F) A: Flowering twig. B: Flower. C: Fruiting calyx. D: Flowering calyx. E: Stamen. F: Pistil. G: Fruiting calyx after seed dispersal. H: Seed.

posterior lip four lobed with 2–3 mm long orbicular lobes; anterior lip entire, elongate, concave, longer than posterior, 5–7 × 3–4 mm, obovate, rounded at apex, sparsely pubescent and densely covered with red sessile glands without. Stamens 4, anterior 2 longer, declinate; filaments free, white, edentate; anthers ovoid, cells 2. Style longer than stamens, stigma subequally 2-cleft, lobes subulate. Nutlets 1–2 mm in size, flattened, ovoid, smooth and glandular.

Phenology: Flowering and fruiting of the new species were recorded in August– October.

Etymology: The specific epithet (*viz. petraeus*) refers to the rocky habitat amongst which this species grows.

Additional specimen examined: INDIA: Kerala, Kollam district, 1.4 km from Achankovil town, Achankovil, 9°06'48.14" N, 77°09'04.21" E, altitude 98 m a. s. l., 4 Sep. 2014, *J. Mathew 4623, 4624* (MSSRF!).

Distribution, habitat and ecology: *Anisochilus petraeus* grows amongst rocks in grass-dominated dry deciduous forests of the Achankovil valley of southern Western Ghats at an altitude of about 95–98m above sea level. Common associates for *A. petraeus* include *Osbeckia muralis* Naud., *Hypolytrum nemorum* (Vahl) Spreng. ssp. *nemorum* Mohanan and *Impatiens viscosa* Bedd. in association with some ferns.

Conservation status: Field surveys have located about 25 individuals within the Achankovil Forests covering an area of 2 km². The threat status of this species has been assigned as 'Critically Endangered' (CR B1ab and 2ab) as per the guidelines of IUCN (2014). Based on the above observations, adequate measures should be adopted to ensure the protection of this species in its natural habitat. Moreover, further surveys for this species are suggested. Apart from habitat destruction caused by anthropogenic intervention and wild fires, no other specific threats were determined during the field studies.

Table 1. Diagnostic morphological characters of *A. petraeus* and *A. carnosus*

Characters	<i>A. petraeus</i>	<i>A. carnosus</i>
Habit	Herbs, 25 cm tall	Subshrubs, 90 cm tall
Leaf		
colour	Dark green above	Pale green above
base	Unequal and obtuse	Equal and cordate
serrations	Distally	Serrate throughout
in margins		
size	Upto 25 x 22 mm	Upto 105 x 60 mm
veins	3 pairs	4-8 pairs
Peduncle	Short, upto 3 cm in size	Long, upto 12 cm in size
Inflorescence	Simple spike, 2.5–3.5 cm long	Basally branched panicle, each spike with 5–8 cm long
flower	Arranged in circular manner	Arranged in hexagonal pyramid manner
Seeds	Ovoid	Orbicular

ACKNOWLEDGEMENTS

The first author is grateful to Dr. K. N. Gandhi, Harvard University, USA for suggestions and encouragement. The authors are thankful to the herbarium curator at TBGT and MSSRF, Kerala for consultations, and the Kerala Forest Department for permission to conduct research.

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