

A new *Chlorophytum* (Asparagaceae) from the southern Western Ghats

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Abstract

Chlorophytum clivorum (Asparagaceae) is described as a new species from southern Western Ghats, India. Colour photographs and key to the species of *Chlorophytum* occurring in the southern Western Ghats are provided here for the easy identification of this new species.

Introduction

Chlorophytum Ker Gawler is a medicinal herb in Asparagaceae comprising c. 190 species of perennial, rhizomatous herbs (Goverts et al. 2015). The genus includes numerous economically valuable species occupying in diverse habitats of Africa, Asia and Australia (Poulsen and Nordal 2005; Mabberley 2005). According to Malpure and Yadav (2009) the genus is represented by 17 species in India, of which 15 occur in the Western Ghats. Kumar and Adsul (2014) recently added *C. palghatense* K.M.P.Kumar & Adsul, a tuber less *chlorophytum* as new taxa from Kerala part of Western Ghats.

Recent floristic exploration in the montane forests of Achankovil (part of Achankovil Shear Zone) situated in the southern Western Ghats has yielded some interesting additional specimens of *Chlorophytum*. The evaluation of specimens in various herbaria revealed that some accessions do not belong to any described species. This has resulted in the recognition of a novel species, which is described here as *Chlorophytum clivorum* J.Mathew & K.V.George.

Taxonomic treatment

Chlorophytum clivorum J.Mathew & K.V.George, *sp. nov.* (Fig. 1)

Diagnosis: *Chlorophytum clivorum* (Fig. 1) differs from *C. tuberosum* (Roxb.) Baker and *C. heynei* Baker in having a greenish perianth (cf. *C. tuberosum* and *C. heynei* both have white perianth) shorter spherical anthers (2 mm long), shorter inflorescence (up to 6 cm long; cf. *C. tuberosum* and *C. heynei* at least 18 cm long), and low lying larger leaves (10–40 cm long, 2–6 cm wide), with 20–25 veins (cf. *C. tuberosum* 7 veins and *C. heynei* >30 veins).

Holotype: INDIA: Kerala: Kollam District, Kottavasal, alt. ± 1250 m, 22 Sep 2014, J. Mathew 4125 (flowering) (MH); iso: SESH.

Terrestrial herbs 12 cm high (including inflorescence), flat to ground; shortly rhizomatous (up to 10 cm long) bearing remains of older leaves; roots short and fusiform with small tubers. *Leaves* 7–12 per plants, low lying or flat to ground; base sheathed, 10–38 cm long, 2–6 cm wide, with 20–25 veins, midrib prominent; margin wavy, glabrous; apex acute. *Peduncle* short (2 cm long), much shorter than leaves; *inflorescence* up to 4 cm long, racemose, unbranched, compact, bracteate; bracts and bracteoles small (1.5–2 cm long), with margin ciliate. *Flowers* paired, sometimes with 3 flower joined together, 2.5–2.8 cm across; shortly pedicellate (0.6–1 cm long), greenish; *perianth* segments 6 in two whorls, 5-nerved, c 1.5 cm long. *Stamens* smaller than perianth; filaments filiform, white, longer than anthers; anthers spherical, 2 mm long, yellowish. *Ovary* 1.5–2 mm long, elliptic, sessile, green; style 5 mm long, stigma glabrous. *Capsule* c. 1 cm long, triquetrous, not deeply lobed; round in cross-section, narrowed at apex; often bearing remains of style. *Seeds* thin, discoid slightly folded.

Distribution and Ecology: Found in rocky cliffs of montane grassland (alt. \pm 1650 m) of the Kottavasal Hills, Agasthyamalai Biosphere Reserve, Western Ghats, Kerala, India. Grows in association with *Arisaema sarracenioides* E. Barnes & C.E.C. Fisch. and *Ariopsis peltata* Nimmo var. *brevifolia* J. Mathew & K.V. George.

Phenology: Flowering and fruiting recorded from August to November.

Conservation status: The current conservation status is data deficient (IUCN 2015). However, it is known that the distribution is limited with only a few plants observed (30 plants) at the few known locations. Although this species occurs in the Agasthyamalai Biosphere Reserve, it appears to have a very restricted distribution and so should, at least, be considered vulnerable.

Etymology: The epithet *clivorum* means 'of the slopes of hills', where the new species grows.

Notes: *Chlorophytum clivorum* is the only species of the genus in Western Ghats with greenish perianth. It shows affinities to *C. perfoliatum* Katiyu, an African element (Katiyu 1993) by the short rhizome and greenish perianth. Earlier researchers evinced that, Achankovil Shear Zone (AKSZ) played a key role in invasion of an African element to the Indian subcontinent (Mathew 2015). In this context, the occurrence of *Chlorophytum* (Afro-Australasian element), particularly this newly described species, in the AKSZ deserves further investigation.

Additional specimen examined: INDIA. Kerala: Kollam District, Kottavasal, J. Mathew 4114, 23 Sep 2014 (flowering) (SESH).

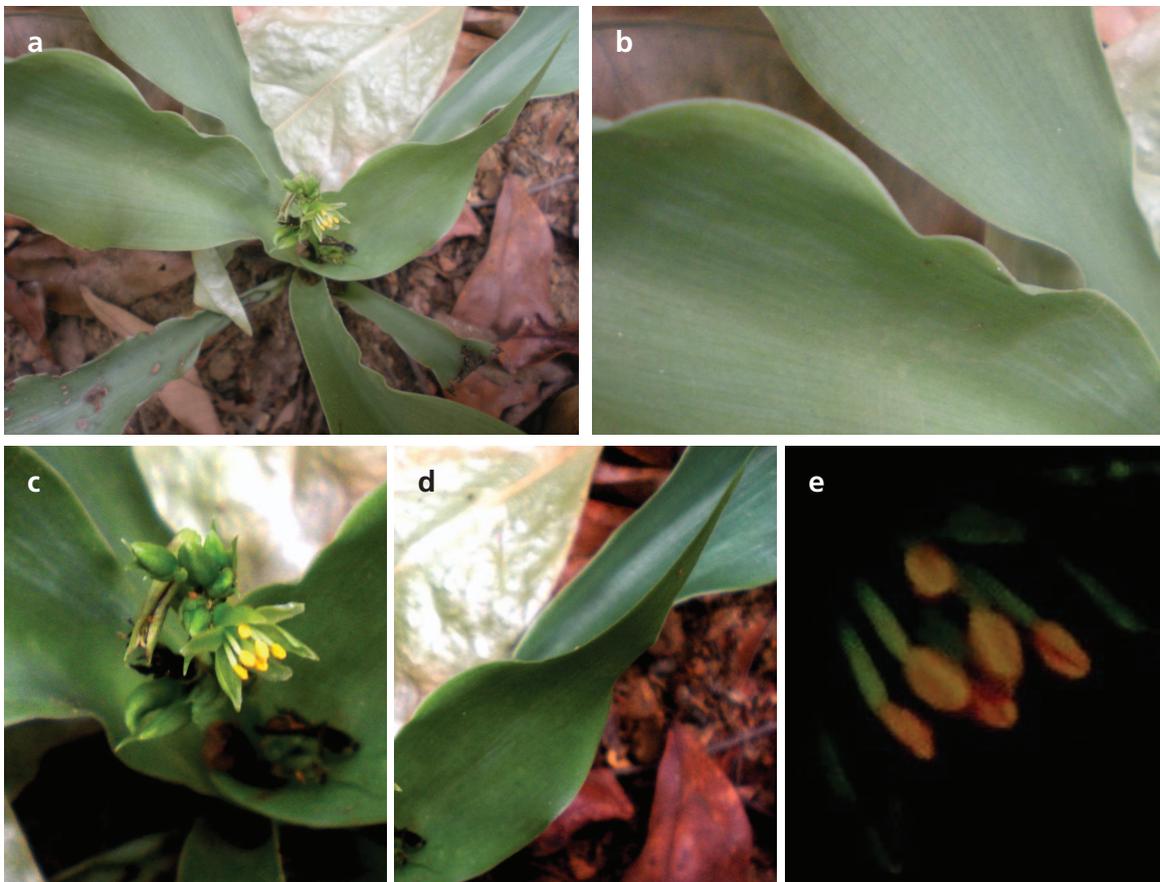


Fig. 1. *Chlorophytum clivorum* J. Mathew & K.V. George **a**, habit; **b**, leaves with wavy margin and venation; **c**, Inflorescence with green coloured perianth; **d**, apical leaf with acute tip; **e**, stamens.

Table 1. Prominent morphological differences distinguishing *Chlorophytum clivorum* from allied species

Character	<i>C. clivorum</i>	<i>C. heynei</i>	<i>C. tuberosum</i>
Lower larger Leaves	10–40 cm long, 2–7 cm wide	10–30 cm long, 2–5 cm wide	15–25 cm long, 1–1.5 cm wide
Veins	20–25	>30	7
Inflorescence	up to 6 cm long (including peduncle)	18 cm long	up to 25 cm long
Flower arrangement	compactly arranged	compactly arranged	distantly arranged
Perianth colour	green	white	white
Anthers	2 mm long, spherical	1.5 mm long, obloid	3 mm long, obloid
Fruit shape (in cross-section)	round	deeply lobed (winged)	deeply lobed (winged)

Key to *Chlorophytum* in southern Western Ghats

1. Flowers white 2
1. Flowers green *C. clivorum*
2. Anthers longer than staminal filament *C. arundinaceum*
2. Anthers shorter than staminal filament 3
3. Capsule 2-lobed, 3rd lobe aborted *C. nimmoni*
3. Capsule 3-lobed 4
4. Leaves broader, up to 5 cm wide; flowers compactly arranged in raceme *C. heynei*
4. Leaves up to 3 cm wide; flowers distantly arranged in raceme 5
5. Peduncles long; flowers appear at apex of raceme *C. tuberosum*
5. Peduncles short; flowers appear at base of raceme 6
6. Stigma 3-fid *C. indicum*
6. Stigma entire 7
7. Ovary 6-lobed; seeds ovoid *C. malabaricum*
7. Ovary 3-lobed; seed reniform 8
8. Leaves 14–20 cm long, 1.5 cm wide; perianth 9–11 mm long, 3 mm wide *C. palghatense*
8. Leaves 10–25 cm long, 0.8 cm wide, perianth 2 mm long, 1 mm wide *C. laxum*

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