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Research article

## A NEW SPECIES OF *CLEMATIS* L. (RANUNCULACEAE) FROM WESTERN GHATS OF KERALA, INDIA

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**ABSTRACT:** *Clematis udayanii* Anilkumar, a new species of *Clematis* from Palakkad district, Kerala is described and illustrated. It is morphologically similar to *Clematis theobromina* Dunn by opposite 3-foliolate leaves, foliaceous bracts and glabrous filaments; but distinguished from it in the several ribbed stem, broadly ovate-oblong leaves with crenate margin, faint lateral leaves, trichotomously branched long panicle inflorescence with many large flowers, sepals purplish on adaxial side, anthers with prominent connective and erect anthers after anthesis and compressed, short tailed achenes with hooked tip.

**Keywords:** *Clematis*, India, Kerala, Ranunculaceae, Western Ghats.

### INTRODUCTION

The genus *Clematis* L. consists of 295 species indigenous in North temperate, South temperate Oceania and tropical African mountains [1] In India, it is represented by 32 species including 4 subspecies and 5 varieties, of which 8 species are known to occur in Peninsular India [2] Among them, 6 indigenous species are recorded from Kerala [3, 4]. During intensive botanical studies along the Western Ghats of Palakkad district of Kerala state in India, the author collected an interesting species of *Clematis* from evergreen forest in Meenvani, Attapady hills of Palakkad district. Detailed taxonomic studies with the perusal of relevant literature proved this to be a species hitherto unknown to science, which is described and illustrated here.

*Clematis udayanii* Anilkumar *sp. nov.* (Fig. 1 & 2)

**Type:** — INDIA. Kerala: Palakkad District, Attappady, Meenvani, 1500-1600 m, 16 September 2012, Anilkumar 4376 (Holotype : CAL<sup>1</sup> ; Isotypes : MH<sup>2</sup>, SKC<sup>3</sup>, CMPR<sup>4</sup>, CALI<sup>5</sup>).

<sup>1</sup> Central National Herbarium (CAL), Calcutta, West Bengal, India

<sup>2</sup> Madras Herbarium (MH), Coimbatore, Tamil Nadu, India

<sup>3</sup> Sree Krishna College (SKC), Guruvayur, Kerala, India

<sup>4</sup> Centre for Medicinal Plants Research (CMPR), Kerala, India

<sup>5</sup> Calicut University Herbarium (CALI), Kerala, India

Glabrous scandent shrubs with prominent nodes and internodes; branches greenish-purplish, 8–17 ribbed, glabrous; Leaves opposite, pinnately 3-foliolate, rarely solitary, 5–9 × 3.5–7.5 cm long, broadly ovate-oblong, rounded or subcordate at base, apiculate at apex, glabrous, 5–7 nerved at base, regularly crenate at margins; terminal leaves with margins entire, smaller lateral leaves lanceolate; petiole twining, glabrous, ribbed, 4–9 cm long. Inflorescence is panicle, up to 25 cm long, axillary or terminal, mostly trichotomously branched, rarely solitary; peduncle up to 10 cm long. Bracts opposite, foliaceous, 1–5 × 0.5–2.5 cm long, linear-lanceolate, simple or rarely 3-lobed.

Flowers many, 1-35 flowered, diameter 7–8 cm, white, pedicel up to 8 cm long. Sepals 5, reflexed towards the abaxial side, thick, brownish abaxially, purplish-red adaxially, lanceolate or oblanceolate, obtuse at apex,  $2.7\text{--}3.2 \times 0.7\text{--}1.5$  cm long, glabrous outside, slightly pubescent inside with fairly white hairs, densely villous along margins. Petals absent. Stamens many, spreading; filaments flat,  $0.7\text{--}3.5$  cm long, ligulate, glabrous, anther lobes  $2.5\text{--}3.75$  mm, straight, sagittate or oblong, dehisce longitudinally, connectives present, developed beyond anthers. Carpels many,  $0.6\text{--}0.8$  mm long with curved tip. Achenes ovoid or oblong,  $1.3\text{--}1.8$  cm long, compressed, silky hairy, short tailed and hooked at apex.

### Diagnosis

The *Clematis udayanii* sp. nov. is most similar with *Clematis theobromina* Dunn by opposite 3-foliolate leaves, foliaceous bracts and glabrous filaments; but distinguished from it in the several ribbed stem, broadly ovate-oblong leaves with crenate margin, faint lateral leaves, trichotomously branched long panicle inflorescence with many large flowers, sepals purplish on adaxial side, anthers with prominent connective and erect anthers after anthesis and compressed, short tailed achenes with hooked tip.



**Fig. 1.** *Clematis udayanii* Anilkumar sp. nov. **A.-D.** Close up of flowers; **E.** Nodal portion; **F.** Inflorescence; **G.** Voucher specimen.

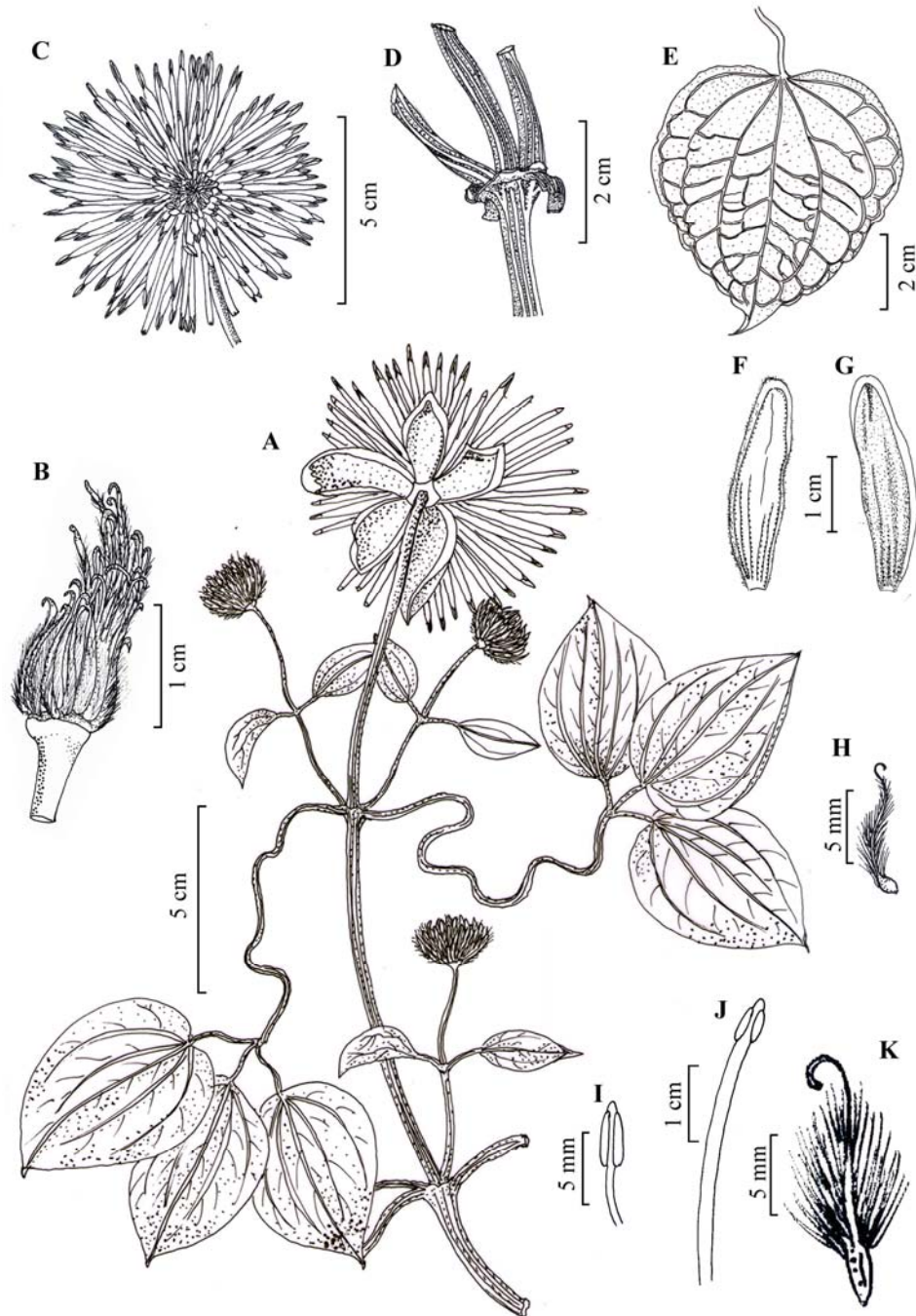


Fig. 2. *Clematis udayanii* Anilkumar sp. nov. A. Flowering twig; B. Mature achenes in peduncle; C. Flower; D. Nodal portion; E. Mature leaf; F. & G. Sepal: abaxial & adaxial view; H. Carpel; I.&J. Stamens short and long; K. Achene (Drawn from Anilkumar KA 4376 (CMPR) by Ms. Sajeena MU).

**Table 1. Diagnostic morphological characters of *Clematis udayanii* with allied species**

Characters	<i>C. theobromina</i>	<i>C. udayanii</i>
Petiole	Not twining, shorter than leaves	Twining, mostly longer than leaves
Leaves	3-foliolate, upper once simple, 6–12 cm long, ovate, obtuse or cordate at base, acute or acuminate at apex	3-foliolate, simple leaves even in the mature stem, 5–9 cm, broadly ovate-oblong, round or sub cordate at base, apiculate at apex
Inflorescence	Always solitary, single flowered	Mostly trichotomously branched panicle, rarely solitary, 1-many flowered
Flowers	4–6 cm across, creamy	7–8 cm across, white
Sepals	Tip not curved, red inside, scarious specially in margins	Tip curved towards its abaxial side, purplish inside, densely villous along margins
Filaments	Up to 9 times larger than anther lobes	Up to 13 times larger than anther lobes
Anther lobes	Anthers spirally twisted after anthesis, connective absent	Straight after anthesis, connective present
Carpel	Erect tip	Curved tip
Achenes	Long-tailed, erect	Compressed, short-tailed with hooked tip

**Flowering and fruiting:** September–November.

**Distribution, Habitat and Ecology:** *Clematis udayanii* is known from Meenvani in the Attapady region of the Western Ghats of Palakkad district, Kerala, where it occurs in evergreen forests at an altitude between 1500–1600 m. It appears that, endemic and very sparsely distributed in the slopes. It is climbing on *Symplocos cochinchinensis* (Lour.) Moore ssp. *laurina* (Retz.) Nooteb. The plant is found growing along with other rare and endemic species such as *Magnolia nilagirica* (Zenk.) Figlar; *Saprosma foetens* (Wight) K. Schum.; *Elaeocarpus munronii* (Wight) Mast.; *Ardisia sonchifolia* Mez; *Photinia integrifolia* Lindl.; *Embelia gardneriana* Wight; *Lasianthus rostratus* Wight; *Strobilanthes gracilis* Bedd.; *Aeschynanthus perrottetii* A.DC. and *Gardneria ovata* Wall.

**Conservation Status:** Known only from undisturbed evergreen forests of Meenvani in the Attapady region on the way to Attapady to Sispara belongs to Nilgiri Biosphere Reserve. A total of 5 individuals were scattered along this forest area. Assessed here as Data Deficient (DD), pending further study.

**Etymology:** The specific epithet of the new taxon is in honor of Dr. P. S. Udayan, PG Department of Botany and Research Centre, Sree Krishna College, Guruvayur, Kerala for his valuable contribution to the field of Plant Taxonomy.

**Additional specimens examined:** —INDIA. Kerala: Meenvani, Attapady forests, Palakkad District, 1500–1600 m, 10 October 2012, Anilkumar 4672 (CMPR).

**Note:** There is only one specimen of *C. theobromina* Dunn from Nilgiri Biosphere Reserve deposited in Kew herbarium(K!). The threat status mentioned in the Red Data book by the IUCN was rare [5].

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