

RESEARCH ARTICLE

Corynandra felina (L.f.) Cochrane and Iltis (Cleomaceae), a new record to the angiospermic flora of Kerala

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Abstract

Corynandra felina (L.f.) Cochrane and Iltis, native to the range of peninsular India, is reported here as a new distributional record to the flora of Kerala from Chinnar Wildlife Sanctuary, Idukki district.

Keywords: *Cleome felina*, Chinnar Wildlife Sanctuary, Kerala, New record.

Introduction

Cleome L. sensu lato is the largest genus of the family Cleomaceae, with 200–250 species, distributed all over the world (POWO, 2022; Mabberley 2017). In 1753, Linnaeus established the genus with eight species under the family Capparidaceae, which was followed by subsequent researchers (De Candolle 1824, Bentham and Hooker 1862, Boissier 1867, Oliver, 1868; Hooker 1875, Hedge and Lamond, 1970; Jafri 1973). Meanwhile, Pax (1891) divided the family Capparidaceae into two subfamilies viz. Capparidoideae and Cleomoideae, and placed the genus *Cleome* under the subfamily Cleomoideae. Further, Airy Shaw (1965) raised the status of Cleomoideae to family level, Cleomaceae and which is supported by the recent report of Hall *et al.*, (2002) and Angiosperm Phylogeny Group System of Classification (2016).

Recently, the genus *Cleome* was segregated into number of genera, and the genus *Corynandra* Schrad. ex Spreng. has

been reinstated based on the species *Cleome chelidonii* L.f. (Iltis and Cochrane, 2007; Cochrane and Iltis, 2014). The genus *Corynandra* is delineated from its other allied genera by means of the closed aestivation of the flowers, large number of stamens, the adaxial (if not all) filaments of which are more or less apophysate, typically erect capsules with persistent valves, that dehisce from the apex and open seed cleft (Cochrane and Iltis, 2014). In India, the genus *Cleome* sensu lato is represented by seventeen taxa (Sundara Raghavan, 1993) and out of which, ten were recorded from Kerala part of Western Ghats (Sasidharan, 2010).

Materials and Methods

As a part of first author's Ph.D. work on south Indian *Cleome* sensu lato, several field exploration trips were conducted during 2019-2021. While exploring the Chinnar Wildlife Sanctuary regions of Idukki district in Kerala, the authors came across an unknown population of *Cleome* grown in the rocky places, which was morphologically distinct from all other known species recorded so far from Kerala. On critical examination and perusal of relevant literature (Hooker, 1875; Gamble, 1921; Sundara Raghavan 1993; Sanchez-Acebo 2005), the specimen was identified as *Corynandra felina* (L.f.) Cochrane and Iltis (basionym: *Cleome felina* L.f.), a species native of peninsular India, which is yet to be figured in the floristic account of Kerala state.

During the study, it is also noticed that, one online database (<https://indiabiodiversity.org>) reported the distribution of *C. felina* from Kerala. Further studies perusal of the detailed literature survey on published floras (Manilal and Sivarajan, 1982; Manilal, 1988; Ramachandran and Nair, 1988; Sasidharan and Sivarajan, 1995; Sivarajan and Mathew, 1997; Sasidharan, 1998; 1999; 2002; 2004; 2013; Mohanan

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Table 1: Comparison of distinguishing characters of *Corynandra chelidonii* and *C. felina*

Characters	<i>Corynandra chelidonii</i>	<i>Corynandra felina</i>
Stem	Erect	Procumbent
Leaves	Dimorphic, 5 – 9 foliate	Monomorphic, trifoliate
Texture of leaves	Membraneous	Coriaceous
Filament	White	Violet
Capsules	Cylindrical, 6–9 cm long	Flat, 3.5 – 4.2 cm long
Seeds	Without elaiosome	With elaiosome

and Sivadasan, 2002; Nayar, 2006; Sunil and Sivadasan 2009;; Nayar *et al.*, 2014) and herbarium consultation in different herbaria (CAL,MH,CALI,TBGT,KFRI,KUBH,CMPR,CATH,RHT) confirmed that, there is no specimen of this species is either mentioned in any floras or deposited in any of these herbaria from Kerala. The detailed description, distribution, field photographs (Figure 1) and dissected photo plate (Figure 2) are provided here for the easy identification of the species.

Result and Discussions

Corynandra felina (L.f.) Cochrane and Iltis, Novon 23 (1): 2014.

Type: Sri Lanka, J.G. Koenig 1777, (LINN 850:9, digital image!). Basionyms: *Cleome felina* L.f., suppl. 300. 1781. *Polanisia felina* (L.f.) DC; Prodr. 1: 242. 1824.

Description

Annual herb, 15–50 cm high. Stem erect or procumbent, branched, sub-cylindrical, green, appressed white hairy. Leaves exstipulate, palmately compound, trifoliate, petiolate; petiole sub-cylindrical with dorsal groove, 0.8–1.3

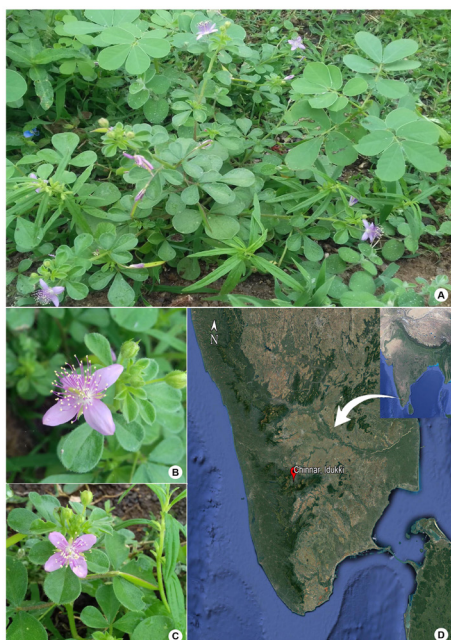


Figure 1: *Corynandra felina* (L.f.) Cochrane and Iltis, A. Habit; B. Flower; C. Plant with Fruit; D. Location of collection.

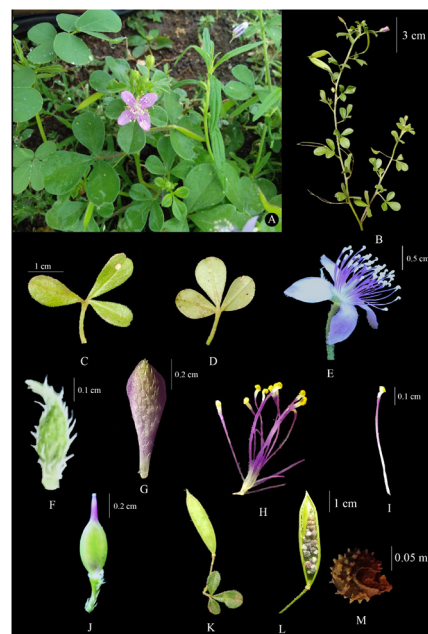


Figure 2: *Corynandra felina* (L.f.) Cochrane and Iltis, A. Habit; B. Flowering twig; C. Leaf adaxial; D. Leaf abaxial; E. Single flower; F. Sepal; G. Petal; H. Stamens; I. Single stamen; J. Gynoecium; K. Capsule; L. Opened capsule with seed containing elaiosome; M. seed.

cm long, pubescent; petiolules absent; leaflets obovate or oblanceolate, upper leaflet large, 1.0–1.8 × 0.5–0.9 cm, lateral leaflets small, 0.8–1.5 × 0.3–0.6 cm, apex round, sub-acute, obtuse or retuse, margin ciliated, base cuneate, pubescent on both sides, coriaceous. Flowers axillary, bisexual, zygomorphic, tetramerous, pedicellate; pedicel cylindrical, 1–1.5 cm long, green, hairy. Sepals 4, free, lanceolate, ca. 0.4 × 0.1 cm, apex acute, margin ciliated, green, hairy, deciduous. Petals 4, free, oblong, not clawed, 0.8 – 0.9 × ca. 0.4 cm, apex acute, margin entire, pink or purple, abaxial surface hispid, adaxial surface smooth, glabrous. Stamens numerous, 45–55; filaments apophysate, ca. 0.7 cm long, purple, glabrous; anther ca. 0.1 cm long, ovoid, yellow, curved after anthesis. Gynoecium flat, oblong; ovary ca. 0.3 × 0.2 cm across, green, glabrous; style short, ca. 0.2 cm long, purple, glabrous; stigma entire, white, glabrous. Capsule flat, oblong 3.5–4.2 cm long, green, drooping, beaked at apex. Seed 14–16 seeds per capsule, horse shoe shaped, tubercled, brown or black, cleft open, elaiosome present.

Flowering & fruiting: May–September.

Specimens examined: India: **Andra Pradesh:** Parchur Prakasam, Vengankunta 29.09.2008, *B. Sadasivaiah and Khadar Basha s. n.* (BSID0002827); Bhumayyagiri Palli, 15.10.2009, *K. Rajakullai Swamy and Rajasekhar s.n.* (BSID002829). **Kerala:** Idukki district, Chinnar Wildlife Sanctuary, 10.3068° N, 77.2060°E, 31.05.2021, *Sangeetha S. and T. Sunilkumar* 10594 (KUBH) (Kerala University Botany Herbarium, Kariavattom, Thiruvananthapuram). **Tamil Nadu:** Coimbatore, Forest College Compound, 468 m, 07.05.1968, *M. Chandrabose* 29880 (MH); Dharmapuri, Addappullam forest, 700 m,

25.07.1978, *E. Vajravelu* 57969 (MH); Madras Presidency, Trichinopoly, Satnur 09.05.1944, *James Sinclair* 3520 (E00693752); Ramanadapuram, Virudanagar, 09.09.1949, *Ramamurthy* 93792 (MH); Salem, Pennagaram, s.d 400 m, *E. Vajravelu* 20731 (MH); Virudanagar, 17.09.1956, *Joseph* 59 (KUBH).

Notes: *Corynandra felina* is differed from its closely resembled species *Corynandra chelidonii* (L.f.) Cochrane & Iltis, distinguishing characters are provided in Table 1. The present collection of *C. felina* from Chinnar Wildlife Sanctuary is a new record to the angiosperm flora of Kerala. Rama Rao (1914) mentioned the name *Cleome felina* in his publication 'Flowering Plants of Travancore'. But presently most of the areas previously considered as Travancore is coming under the state of Tamil Nadu and there is no scientific evidence from Kerala to justify his statement in any of the herbaria. Hence it is confirmed that, the occurrence and distribution of *C. felina* from the state of Kerala is a wrong statement without any scientific evidence. Perusal of this data, it is clear that the present collection *Corynandra felina* from Chinnar Wildlife Sanctuary is a new record to the angiosperm flora of Kerala.

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