



## *Ceropegia jilongensis*, a new species of Apocynaceae from Xizang, China

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**ABSTRACT:** *Ceropegia jilongensis*, a new species from Jilong, Xizang, China, is described and illustrated. This species is similar to *C. hookeri*, but clearly differs in its indumentum of pedicel and corolla tube, ovoid cage size, corolla lobes and interstaminal corona lobes shape. It is also similar to *C. salicifolia* and *C. angustifolia*, but easily distinguished by its leaf shape, peduncle length, indumentum of pedicel and corolla tube, interstaminal corona lobes shape. A comparison table of related species is provided.

**KEY WORDS:** Affinities, *Ceropegia angustifolia*, *C. hookeri*, *C. salicifolia*, distribution, Jilong, sect. *Chionopegia*.

### INTRODUCTION

According to a recent phylogenetic study, the genus *Ceropegia* is the largest genus of the family Apocynaceae and comprises more than 700 species with the inclusion of the traditional *Brachystelma* species and the succulent stapeliads, distributed in China, India, Southeast Asia, Madagascar, Arabia, the Canary Islands, Africa, Papua New Guinea and Australia (Huber, 1957; Li *et al.*, 1995; Albers and Meve, 2002; Bruyns *et al.*, 2017; Wu *et al.*, 2019; Murugesan and Mao, 2021). Up to now 20 *Ceropegia* species have been recorded in China, includes traditional 17 *Ceropegia* species, 2 *Brachystelma* species and a recently published species (Li *et al.*, 1995; Wu *et al.*, 2019).

*Ceropegia* sect. *Chionopegia* established by Huber in 1957, is mainly distributed in the Himalaya region, Pakistan and India eastwards to China (Bruyns *et al.*, 2017; Kambale and Yadav, 2019). In China, up to now 11 *Ceropegia* species belong to sect. *Chionopegia* (Li *et al.*, 1995; Bruyns *et al.*, 2017). Absent globose tubers, fleshy roots, 1–5 flowers in gradual succession, corolla with slender tube, globose at base and lobes coherent at apex are the key characters of *Ceropegia* sect. *Chionopegia* (Bruyns *et al.*, 2017; Kambale and Yadav, 2019).

During systematic botanical researches in Jilong County, Xizang Autonomous Region, southwest of China, we collected an unknown species of *Ceropegia*. This species belongs to sect. *Chionopegia*, and is morphologically similar to *C. hookeri* C. B. Clarke, *C. salicifolia* H. Huber and *C. angustifolia* Wight. After literature review as well as morphological examination, we confirm that it represents a new species and therefore, described here.

### TAXONOMIC TREATMENT

*Ceropegia jilongensis* X. D. Ma & J. Y. Shen, *sp. nov.*

吉隆吊燈花 Fig. 1

**Type: CHINA:** Xizang, Rikaze, Jilong, Sale, Seqiong, roadside, 28°20'N, 85°25'E, alt. 2681 m, 21 July 2021, Xing-da Ma, Jian-yong Shen, Shi-shun Zhou & Jian-wu Li XTBG-HIM 1492 (holotype: HITBC).

**Diagnosis:** This species clearly differs from *C. hookeri* by its densely pubescent pedicel (vs. glabrous pedicel); pubescent exterior of corolla tube, interior glabrous (vs. glabrous exterior, interior hairy); bigger ovoid cage, 12–15 mm in diameter, ca. 2 times as wide as the inflated basal tube (vs. 4.5–6.5 mm in diameter, as wide as the inflated basal tube); obovate corolla lobes (vs. linear-spatulate lobes); interstaminal corona lobes divided into pairs of linear teeth (vs. reduced to ciliate flanges).

Perennial, twining herbs, up to 1 m long. Roots 4–7, white, fleshy, fusiform, fascicled, 2–9 cm long, ca. 2.5 mm in diameter. Stems slender, terete, greenish or brown-maroon, usually unbranched, 1.5–2 mm in diameter, densely pubescent when young, turning sparsely pubescent with age, internodes 6–14 cm long. Leaves opposite; petioles terete, 1–1.8 cm long, 1.5–2 mm in diameter, densely pubescent, adaxially decurrent grooved, with a group of adaxial glands at the top; leaf blade ovate-elliptic, 3.5–8 × 2–3.5 cm, papery, adaxially green, sparsely pubescent, abaxially pale green, sparsely pubescent along veins, base broadly cuneate to rounded, apex acuminate to caudate, margin entire, ciliate; mid-vein adaxially flat or slightly depressed, abaxially prominent, lateral veins 4–5 pairs, obliquely ascendant, reticulate near margin, adaxially flat or slightly depressed, abaxially slightly convex. Inflorescence one per node, extra-axillary, 1–2-flowered cyme; peduncle 2–4 mm long, ca. 1 mm in diameter, densely pubescent; bracts 2–3, subulate to lanceolate, 1–2 mm long, greenish to brown-maroon, apex acuminate, densely pubescent; pedicel slender, 7–10 mm long, ca. 1 mm in diameter, densely pubescent. Sepals 5, narrowly triangular, 3–5 × 0.5–0.8 mm, apex acuminate, adaxially glabrous, abaxially glabrous or sparsely pubescent. Corolla tubular, 2.5–3 cm long, slightly curved; tube 1.5–2 cm long, dilated at base, ca. 6 mm in diameter, narrow cylindrical

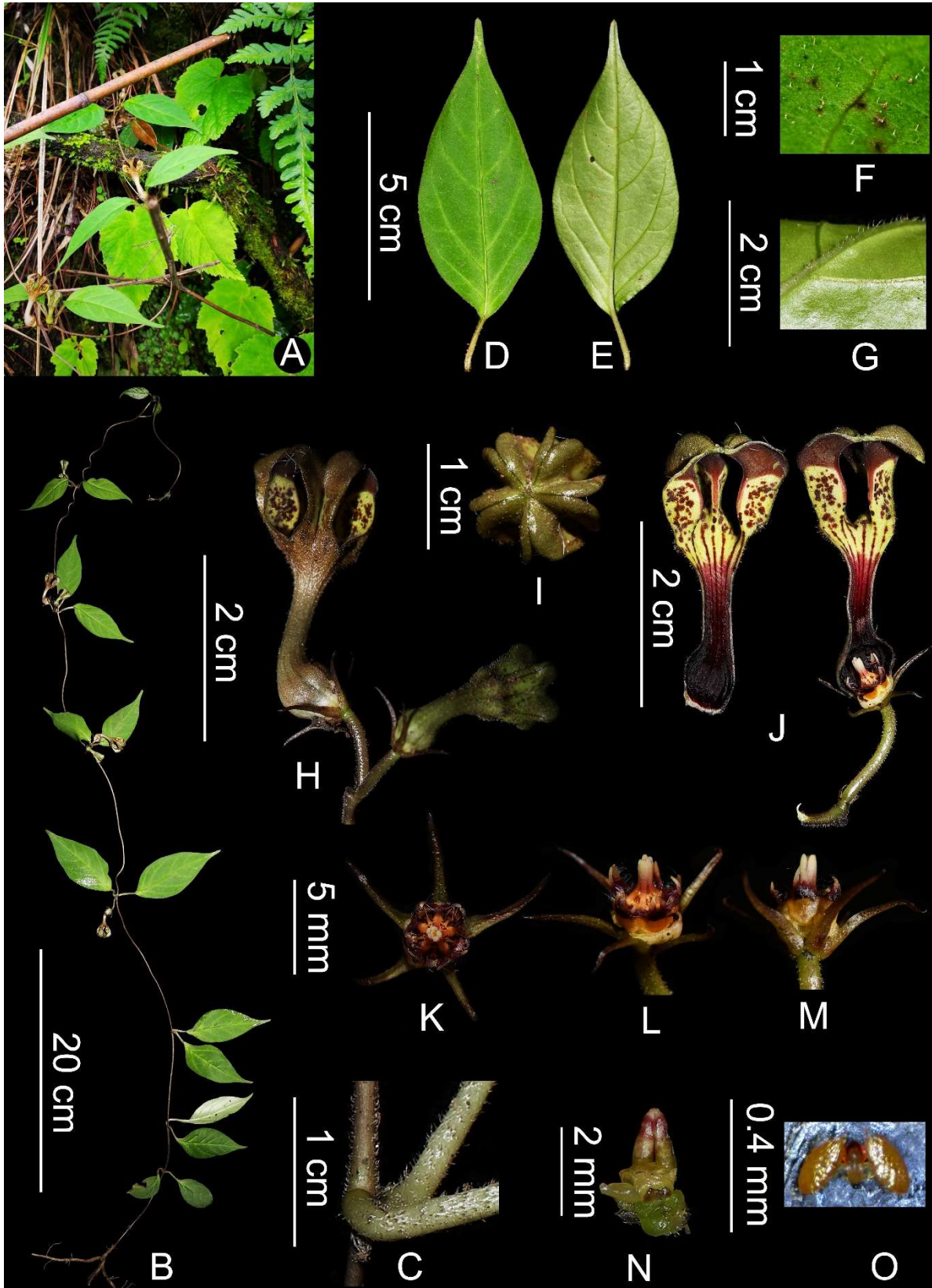


Fig. 1. *Ceropegia jilongensis*. A: Habit. B: Plant. C: Stem and petiole showing the pubescence. D–E: Adaxial and abaxial leaves surface. F–G: Adaxial and abaxial leaves surface enlarged showing the pubescence. H: Inflorescence. I: Front view of the open flower. J: Opened corolla, showing the color of the interior. K: Front view of sepal and corona. L–M: Side view of sepal and corona. N: Ovary. O: Pollinia.

**Table 1.** Comparison of *Ceropegia jilongensis*, *C. hookeri*<sup>1</sup>, *C. salicifolia*<sup>1</sup> and *C. angustifolia*<sup>2</sup>.

Characters	<i>C. jilongensis</i>	<i>C. hookeri</i>	<i>C. salicifolia</i>	<i>C. angustifolia</i>
Leaf shape	ovate-elliptic	ovate-lanceolate to elliptic-lanceolate	lanceolate	lanceolate
Leaf size	3.5–8 × 2–3.5 cm	3.4–5.2 × 1.3–2.4 cm	6–15 × 1–2.1 cm	3.5–15 × 1–2.9 cm
Leaf base	broadly cuneate to rounded	broadly cuneate to rounded	broadly cuneate	narrowly cuneate
Inflorescence	1–2-flowered	1–2-flowered	13–30-flowered	5–6-flowered
Peduncle length	2–4 mm	1–4 mm	1–10 mm	10–55 mm
Pedicel	densely pubescent	glabrous	glabrous	glabrous
Corolla tube surface	exterior pubescent, interior glabrous	exterior glabrous, interior hairy	exterior glabrous, interior puberulent	exterior glabrous, interior hairy at throat
Ovoid cage	12–15 mm in diameter, ca 2 times as wide as the inflated basal tube	4.5–6.5 mm in diameter, as wide as the inflated basal tube	10–15 mm in diameter, ca 2 times as wide as the inflated basal tube	7–9 mm in diameter, ca 1.5 times as wide as the inflated basal tube
Corolla lobes	obovate, margins sparsely hairy or glabrous	linear-spatulate, glabrous	ovate, exterior glabrous, interior hairy	elliptic-oblong, glabrous
Interstaminal corona lobes	divided into pairs of linear teeth	reduced to ciliate flanges	triangular, shortly bifid at apex	shortly bifid at apex

<sup>1)</sup> from Gilbert and Stevens, 1995. <sup>2)</sup> from Kambale and Yadav, 2019.

in the middle, ca. 3 mm in diameter, slightly widened above, mouth ca. 1 cm in diameter, exterior greenish to brown-maroon, pubescent, interior maroon or reddish brown except throat, throat yellowish-green with reddish brown stripes or speckles, glabrous; lobes obovate, ca. 1 × 0.8 cm, slightly revolute along the midrib, connate and slightly concave at the tip, exterior greenish to brown-maroon, pubescent, interior reddish brown in the upper part, yellowish-green with reddish brown speckles or lines in the lower part, glabrous, margins sparsely ciliate or glabrous. Corona biseriate; interstaminal lobes 5, ca. 2 mm long, divided into pairs of linear teeth, with white trichomes, maroon at base, translucent white towards apex, apex obtuse; staminal lobes 5, linear-lanceolate, ca. 3 mm long, translucent, reddish at base, white towards apex, apex rounded, glabrous. Pollinia brownish, ovoid, ca. 0.2 × 0.1 mm, attached to brownish corpusculum by short translator arms. Ovary conical, ca. 1.5 mm long, 0.5 mm diameter in the middle, glabrous. Follicles and seeds not seen.

**Phenology:** Flowers were observed in July.

**Etymology:** This new species is named after the type locality, Jilong County.

**Distribution and habitat:** This new species is currently known only from Sale Township, Jilong County, Xizang Autonomous Region, China, growing in temperate coniferous forests close to a road.

**Conservation assessment:** The Jilong Grand Canyon (Jilong County, Xizang Autonomous Region, China) was surveyed comprehensively for two weeks, during the study, we only found one population of *Ceropegia jilongensis* that was sporadically distributed in temperate coniferous forests near a road. The new species may be also distributed in Nepal because the type locality is near Nepal. Since insufficient field surveys up to now, its natural distribution and population status are currently

unknown. According to the IUCN Red List Categories and Criteria version 14 (IUCN, 2019), the new species should be assessed as ‘Data Deficient’ (DD).

**Features and affinities:** *Ceropegia jilongensis* belongs to sect. *Chionopegia*, is morphologically most similar to *C. hookeri* (China, India and Nepal), but clearly differs in its pedicel densely pubescent (vs. glabrous); exterior of corolla tube pubescent, interior glabrous (vs. exterior glabrous, interior hairy); ovoid cage 12–15 mm in diameter, ca. 2 times as wide as the inflated basal tube (vs. 4.5–6.5 mm in diameter, as wide as the inflated basal tube); corolla lobes obovate (vs. linear-spatulate); interstaminal corona lobes divided into pairs of linear teeth (vs. reduced to ciliate flanges). The general corolla shape of *C. jilongensis* is very similar to *C. salicifolia* (China) and *C. angustifolia* (Nepal, India and Bangladesh), it differs from *C. salicifolia* by its leaf blades ovate-elliptic, 3.5–8 × 2–3.5 cm (vs. lanceolate, 6–15 × 1–2.1 cm); inflorescence with fewer flowers (1–2 flowers vs. 13–30 flowers); pedicel densely pubescent (vs. glabrous); exterior of corolla tube pubescent, interior glabrous (vs. exterior glabrous, interior puberulent); interstaminal corona lobes divided into pairs of linear teeth (vs. triangular, shortly bifid at apex). The new species is easily distinguished from *C. angustifolia* by its leaf blades ovate-elliptic, 3.5–8 × 2–3.5 cm, base broadly cuneate to rounded (vs. lanceolate, 3.5–15 × 1–2.9 cm, base narrowly cuneate); inflorescence with fewer flowers (1–2 flowers vs. 5–6 flowers); shorter peduncle (2–4 mm vs. 10–55 mm); pedicel densely pubescent (vs. glabrous); exterior of corolla tube pubescent, interior glabrous (vs. exterior glabrous, interior hairy at throat); interstaminal corona lobes divided into pairs of linear teeth (vs. shortly bifid at apex). A comparison with three related species is provided (Table 1).



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