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Begonia kuofangii, a new species of *Begonia* sect. *Coelocentrum* (Begoniaceae) from karst area of southwestern Guangxi, China

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ABSTRACT: *Begonia kuofangii*, from Leiping Town, Daxin County is a new species endemic to the Guangxi Zhuang Autonomous Region, China. This is the latest addition to *Begonia* section *Coelocentrum*. It resembles *Begonia subcoriacea* C.-I Peng, Yan Liu, S. M. Ku but differs in leaf shape (ovate-oblong *vs* widely ovate or suborbicular), peduncle and pedicels indumentum (subglabrous *vs* glandulose-pilose with reddish trichomes), pistillate flower tepals (2(-3) *vs* 3). Only about 100 mature individuals were found in less than 5 km^2 area, hence *Begonia kuofangii* is provisionally assessed as Critically Endangered (CR).

KEY WORDS: Begoniaceae, *Begonia subcoriacea*, China, Guangxi, limestone flora, new species.

INTRODUCTION

The genus *Begonia* L. (Begoniaceae), is one of the biggestgenera in the world, distributed in tropical and subtropical areas of Asia, Africa, and America, comprises 2191 species and the number of known species has been increasing rapidly (Hughes *et al*., 2015). Currently, 297 species (including infraspecies and natural hybrid species) have been recognized in China (Gu *et al*., 2007; Borah *et al*., 2023, 2024a,b; Das *et al.*, 2024; Tian *et al*., 2024a,b,c; Wang *et al*., 2024; Zhou *et al*., 2024, 2025; Hu *et al.*, 2025; Xi *et al.,* 2025).

Begonia section *Coelocentrum* Irmscher, distributed in the limestone karst areas from southern China to northern Vietnam, includes 96 species (Hughes *et al*., 2015). Guangxi Zhuang Autonomous Region of China and northern Vietnam is center of sect. *Coelocentrum*, which possibly has more than 100 species (Wang *et al*., 2024). In Guangxi, 101 species of *Begonia* have been found (Chen *et al*., 2018; Liu *et al*., 2020; Feng *et al*., 2023; Tian *et al*., 2024c; Wang *et al*., 2024; Zhou *et al*., 2024, 2025; Hu *et al.*, 2025; Xi *et al.,* 2025), and 63 species belong to sect. *Coelocentrum*.

This new species belongs to sect. *Coelocentrum*, characterized by rhizomatous, obliquely ovate to ovate-lanceolate leaf and red underside, staminate flowers tepals 4 and pistillate flower tepals 2, parietal placentation, unequally 3-winged. Our study had brought this distinct new species to light, which is described below.

MATERIALS AND METHODS

Fieldwork was undertaken in Daxin County, Chongzuo City, Guangxi Zhuang Autonomous Region, from 2018 to 2024. All measurements and descriptions are based on recently collected specimens. The plant terminology standardized according to Harris and Harris (2001) and herbarium codes conform to Index Herbariorum (Thiers, 2025–). A comparative morphological analysis was performed by examining type specimens and relevant literature in the China and Vietnam *Begonia* sect. *Coelocentrum* species. IUCN Red List assessment following current guidelines (IUCN, 2024).

TAXONOMIC TREATMENTS

Begonia kuofangii W.B.Xu & W.G.Wang, ***sp.nov.*** Sect. *Coelocentrum* **國芳秋海棠 Figs. 1 & 2**

***Type*: CHINA.** Guangxi Zhuang Autonomous Region, Chongzuo City, Daxin County, Leiping Town, Suitun Village, in shaded environment of limestone forests, elevation 270 m, 8 June 2018, *W. B. Xu & Y. Qin 13853* (holotype: IBK [IBK00471728]; isotypes: IBK).

Diagnosis: *Begonia kuofangii* morphologically resembles *Begonia subcoriacea* C.-I Peng, Yan Liu, S. M. Ku (Peng et al., 2008) in rhizome, subleathery leaves and greenish-yellow flowers, but differs in having smaller stipules size (7–9 × 6–9 *vs* 10–25 × 8–14 mm), an ovate-oblong leaf shape (*vs* widely ovate or suborbicular), peduncle and pedicels subglabrous (*vs* glandulose-pilose with reddish trichomes), inner tepals size of staminate flowers (2–3 *vs* 4–6), filaments basally nearly free (*vs* fused), pistillate flower tepals 2 (-3) (*vs* 3).

Herb, 20–50 cm tall, monoecious, perennial, rhizomatous. **Rhizome** 8–15 cm long, 0.6–1.5 cm thick, internodes 0.5–1 cm long, brown, villous when young, glabrous when old. **Stipules** caducous, triangular-ovate,

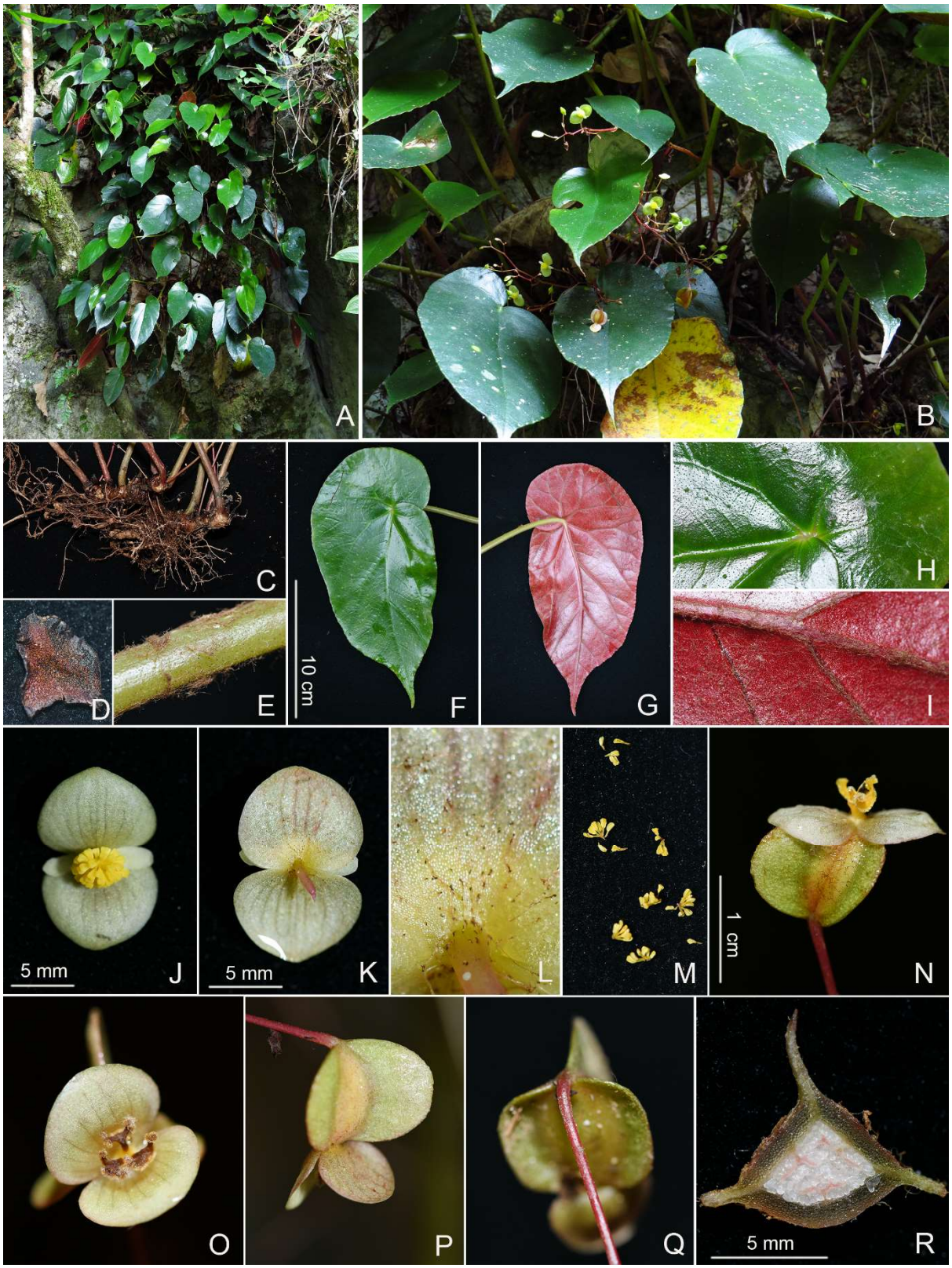

Fig. 1. Illustration of ***Begonia kuofangii***. **A** – **B**. Habitat. **C.** Rhizome. **D.** Stipule. **E.** Petiole. **F** – **G.** Adaxial and abaxial surfaces of leaves showing size and color variation. **H** – **I.** Sections of adaxial and abaxial leaf surfaces showing indumentum difference. **J** – **K.** Front and back views of staminate flower. **L.** Indumentum of the abaxial of staminate flower. **M.** Stamens. **N** – **O.** Side and front view of pistillate flower. **P** – **Q.** Side view of young fruits. **R.** Cross section of ovary. (Photos A – B by Wei-Bin Xu, C – R by Wen-Guang Wang)

Fig. 2. Holotype of ***Begonia kuofangii***.

7–9 mm long, 6–9 mm wide, brownish, herbaceous, abaxially hairy, with 5–7 red midrib, margin usually ciliate, apex aristate, arista 1–3 mm long, somewhat hornlike. **Leaves** 2–6 or more, alternate, simple, asymmetric, unlobed, ovate to oblong, base strongly oblique cordate, margin inconspicuously irregularly repandly denticulate, apex acuminate, 14–29 cm long (basal lobes included), 6–13 cm wide, adaxially green, abaxially reddish, adaxially glabrous (sparsely gibbous when young), obviously nitid, abaxially tomentose on major veins and tertiary venation; venation basally 7-palmate, midrib distinct, pinnate along midrib, with 1–3 major lateral veins on each side, other primary veins dichotomously branching or nearly so; petiole terete, 11–33 cm long, 5–8 mm thick, greenish or brownish, tomentose (trichomes withered and turning brown when old). **Inflorescences** axillary, 1–4, arising directly from rhizome, diffusely cymose, branched 3–6 times; peduncle well developed, terete, erect or ascending, 15–20 cm long, ca. 2 mm thick, red, subglabrous. **Bracts** caducous, oblong, margin ciliate, apex acute, 3–5 mm long, 2–3 mm wide, greenish or reddish. **Staminate flowers:** tepals 4, greenish-yellow, outer two orbicular, base rounded or slightly cordate, apex rounded or obtuse, 7–8 mm long, ca. 7 mm wide, abaxially sparse trichomes; inner two tepals obovate, base cuneate, apex obtuse, 2–3 mm long, 2–3 mm wide, glabrous; androecium actinomorphic, spherical, stamens 44–53, filaments basally nearly free, 1–1.5 mm long; anthers 2-locular, slightly compressed, obovoid, apex truncate or slightly emarginate, ca. 1 mm long, 0.5–1 mm wide, yellow; pedicel dark red, glabrous, 12 – 20 mm long, 0.5–1 mm thick. **Pistillate flower:** tepals 2 (-3), greenish yellow, margin entire; tepals widely depressed ovate, 6–12 mm long, 9–10 mm wide, greenish-yellow, abaxially sparse trichomes; base rounded, apex rounded or obtuse; ovary 3-winged, wings unequal, locule 1, placenta parietal; styles 3, fused at base, yellow, ca. 2 mm long, apically split into C-form; stigmas in a spiraled band; pedicel dark red, glabrous, ca. 20 mm long, ca. 1 mm thick. **Fruit** a dehiscent capsule, nodding, greenish to red when fresh, sparsely tomentose, apex with persistent styles; wings unequal, 10–14 mm long, lateral wings 5–6 mm wide, abaxial wing crescent shaped, 6–10 mm wide. Seeds many, brown.

Etymology: The specific epithet " *kuofangii"* is in honor of Dr. Kuo-Fang Chung, curator of Research Museum and Herbarium (HAST), Biodiversity Research Center, Academia Sinica, for his emphatic interest and substantial contribution to the study of Guangxi *Begonia* (Chung *et al*. 2014; Tseng *et al*. 2019; Liu *et al*., 2020).

Phenology: Flowering May to June; fruiting July to August.

Distribution and ecology: The new species is known only from Suitun Village of Leiping Town in Daxin County. The plants grow on slope or rocky surface under the forest of karst hill at 270–300 m elevation.

Conservation status: *Begonia kuofangii* is known only from two subpopulations of ca. 100 mature individuals. The area of occupancy (AOO) of the species is estimated to be less than 5 km^2. Thus, we provisionally considered *B. kuofangii* as Critically Endangered (CR) [B2ab(iii)] according to the Guidelines using the IUCN Red List Category and Criteria (IUCN, 2024).

Additional specimens examined (Paratypes): China. Guangxi Zhuang Autonomous Region, Chongzuo City, Daxin County, Leiping Town, Suitun Village, in shaded environment of limestone forests, elevation 270 m, 8 June 2018, *W. B. Xu & Y. Qin 13854* (IBK); *ibid.*, 7 December 2019, *W.B.Xu, L.N.Dong & Y.X.Zeng 14168* (HAST) ; 17 May 2024, *W.G. Wang & S. Yang 505* (HITBC).

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