



Begonia austroyunnanensis, a new species of *Begonia* (Begoniaceae) from Yunnan, China

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ABSTRACT: *Begonia austroyunnanensis*, a new species from Yunnan (China) is described and illustrated. This new species is similar to *B. subhowii* in having short erect stems, obliquely ovate leaves and white flowers, but can be distinguished by its stem, petioles and peduncle having conspicuous, red, linear dots and the much longer abaxial wing of the capsule. A detailed description, data on distribution, ecology and an illustration are provided.

KEY WORDS: *Begonia*, Begoniaceae, New taxon, Taxonomy, Western China, Yunan.

INTRODUCTION

The genus *Begonia* L. (Begoniaceae) is the sixth largest genus of flowering plants, comprises 1930 species (Hughes *et al.* 2015–), and is distributed in the tropical and subtropical areas in the world (Chen *et al.* 2018). In China, about 204 species have been recorded according to the Flora of China (Gu *et al.* 2007) and recent publications (Chen *et al.* 2018, Ding *et al.* 2014, Ding & Zhao *et al.* 2018, Ku *et al.* 2008, Li *et al.* 2008, 2016, 2018, Liu *et al.* 2007, Ma & Li 2006, Peng *et al.* 2008, 2009, 2010, 2012, 2013, 2014, Peng & Ku *et al.* 2014, Peng & Liu *et al.* 2008, Qin *et al.* 2017, Shui 2007, Tian *et al.* 2015, Wei *et al.* 2007, Wang *et al.* 2019).

In December 2017, Jian-Yong Shen and Hou-Cheng Xi conducted a field survey of the Puer area in Yunnan province (China) and collected an unknown *Begonia* species. The plant was cultivated at Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. The authors identified it as a potential new species. This species belongs to sect. *Platycentrum* (Klotzsch) A.DC. characterized by rhizomatous habit, short stem, eounded tip of the anther, staminate flower tepals 4, pistillate flower tepals 5, ovary with 3 unequal wings, 2 styles, 2-loculed, placentae axile (Doorenbos *et al.* 1998, Moonlight *et al.* 2018). In Asia, *Begonia* sect. *Platycentrum* is the second largest section with more than 175 species (Camfield & Hughes 2018, Hughes *et al.* 2019, Krishna *et al.* 2018, Li & Tan *et al.* 2018, Moonlight *et al.* 2018, Wahlsteen 2018), and about 80 species in China (Gu *et al.* 2007, Moonlight *et al.* 2018). After examining the type specimens and literature of *Begonia* sect. *Platycentrum* from China and the adjacent regions, the authors identified it as a new species. This new species similar to *B. subhowii* in having short erect stems, obliquely ovate leaves and white flowers, but differs in having conspicuous, red, linear dots on the stems, petioles and peduncle; being simple minute

adpressed hairs on the stem and petioles; much shorter bracts, and a longer abaxial wing of the capsule (Fig 1, Table1).

TAXONOMIC TREATMENT

Begonia austroyunnanensis W.G.Wang, H.C.Xi & J.Y.Shen, *sp. nov.*

Fig 1 滇南秋海棠

The new species is similar to *B. subhowii* S. H. Huang in having short erect stems, obliquely ovate leaves, and white flowers, but can be distinguished by its stem, petioles, and peduncle having conspicuous, red, linear dots and the much longer abaxial wing of the capsule.

TYPE: CHINA. Yunnan province, Puer district, Menglian county, Mangxin town, on shaded rocky limestone slopes in broadleaved forest near village, elev. 920 m, 7 December 2017, H.C. Xi & J.Y. Shen, 957 (Holotype, HITBC!; isotype: TAI!).

Plant monoecious, perennial, 20–35 cm tall. Rhizome, short, branched, 5–8 cm long, 3–5 cm thick, internodes 0.8–1 cm long, with red spots. Stem erect, 5–15 cm long, with red linear dots, sparsely simple minute adpressed hairs, white, less than 0.2 mm long. Leaves 5–12 per plant, basal or occasionally on 1–3 nodal stem at anthesis. Stipules pale green, membranous, broadly triangular, 1.5–2 × 0.8–1.2 cm, both surface with sparsely simple minute adpressed hairs, white, less than 0.2 mm long, margin entire, apex cuspidate, cusp ca. 2 mm long. Petiole green, with red, linear dots, cylindrical, 7–21 cm long, 3–7 mm thick, and sparsely simple minute adpressed hairs white, less than 0.2 mm long. Blade green, broadly ovate, 13–22.5 × 10–16 cm, strongly asymmetric, both surface glabrous; venation palmate, 8–9 veined; deeply cordate at base, margin irregularly serrulate, slightly reflexed, apex acuminate or shortly caudate. Inflorescences 3–7, basal or rarely terminal on short stem with 1–3 internodes, 10–20 cm long, peduncles green with red, linear dots, sparsely

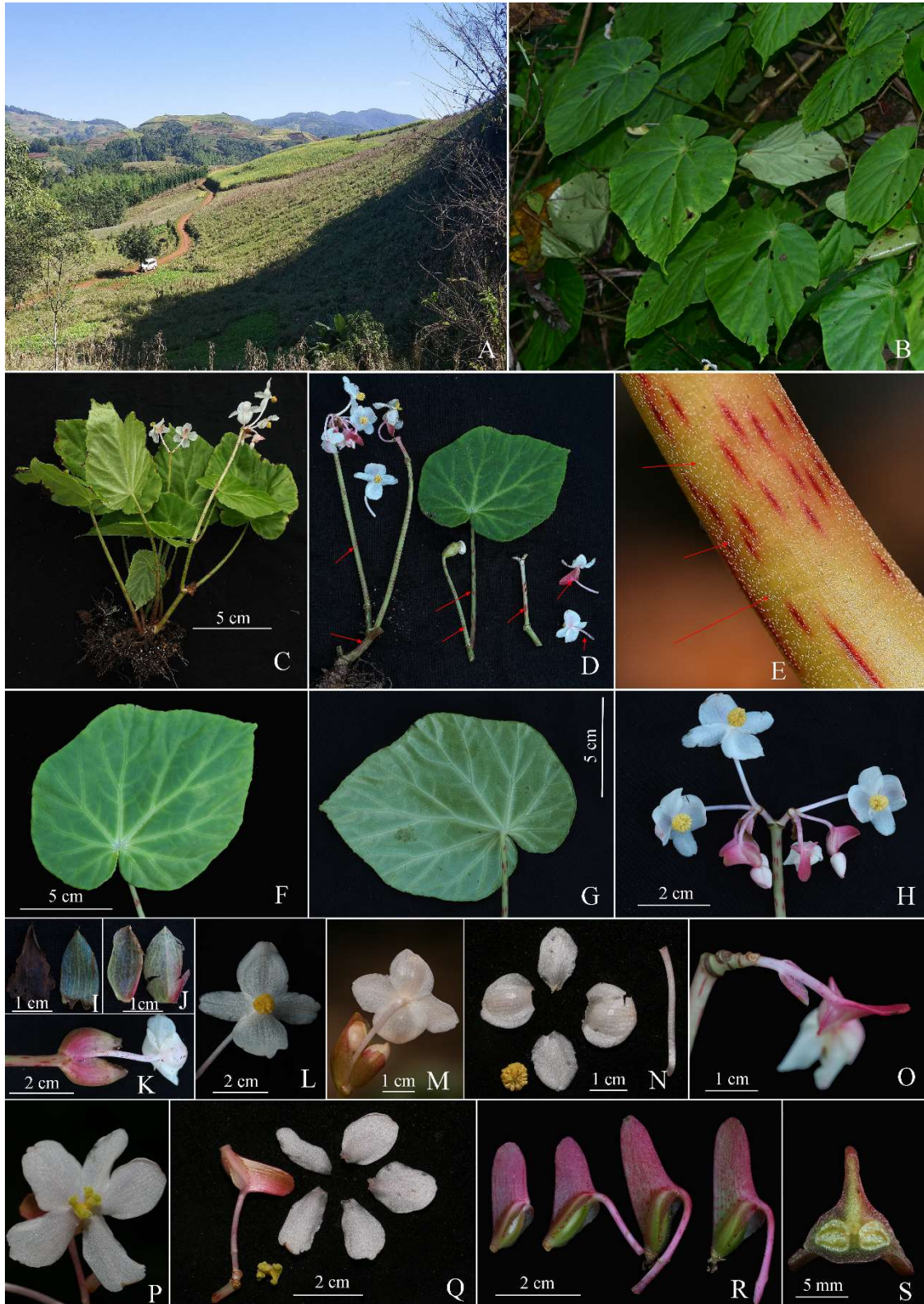


Fig 1. *Begonia austroyunnanensis* W.G.Wang, H.C.Xi & J.Y.Shen **A.** Habitat; **B.** Habit; **C.** Blooming mature individual; **D.** Red arrows showing red linelar dots on the rhizome, stem, petiole, peduncle and pedicel; **E.** Red arrows showing sparsely simple minute adpressed hairs on the stem; **F, G.** Both side of leaves; **H.** Inflorescence; **I.** Stipules; **J, K.** Bracts; **L, M, N.** Staminate flowers; **O.** Showing bracteoles of the pistillate flower; **P, Q.** Pistillate flower and dissection; **R.** Capsules; **S.** Cross-section of ovary. (Photos: A, B. by J.Y.Shen; C–L, O, R, S. by W.G.Wang; M, N, P, Q. by H.B.Ding)

**Table 1.** Comparison of *Begonia austroyunnanensis* and *B. subhowii*.

| Characters | <i>Begonia austroyunnanensis</i> | <i>Begonia subhowii</i> |
|--------------------|---|---|
| Rhizome | usually branched, with red spots | usually branched, no spots |
| Stem | present, 5–15 cm tall, sparsely simple minute adpressed hairs, with red linear dots | absent or rarely very short, glabrous, no linear dots |
| Leaf blade | broadly ovate, 13–22.5 × 10–16 cm | obliquely ovate, 4.5–9 × 10–11 cm |
| Stipule | broadly triangular, sparsely simple minute adpressed hairs on both surface | broadly triangular, glabrous |
| Petiole | green, 7–20 cm long, with red, linear dots, sparsely simple minute adpressed hairs | green to brown, glabrous, 18–20 cm long |
| Bracts | ovate-lanceolate, 1.5–2.5 × 1.5–2 cm | ovate-lanceolate, 2.5–5 × ca.3 cm |
| Pediceal | 2.5–5 cm long, white to pink · with red, linear dots | 1–2 cm long, white |
| Abaxial fruit wing | nearly round-rectangular, 2–3 × 1–1.5 cm, with red, linear dots | ligulate, ca. 1.5 × 1.3 cm, green to brown, no red, linear dots |

simple minute adpressed hairs, white, less than 0.2 mm long, 3–4 mm in diameter. Bracts ovate-lanceolate, 1.5–2.5 × 1.5–2 cm, glabrous, margin entire. Flowers 5–9 per inflorescence. Staminate flower: opening earlier than pistillate flower, pedicel white or slightly pink, with red linear dots, glabrous, 2.5–5 cm long; corolla 30–38 mm in diameter; tepals 4, outer 2 larger, white, broadly ovate, 15–20 × 15–18 mm, glabrous; inner 2 smaller, oblong, 15–20 × 9–11 mm, glabrous; androecium 8–9 mm long, 5–8 mm in diameter; stamens about 100–130, filaments 2–3 mm long, base fused; anthers yellow, obovate, 1–1.5 mm long, apex rounded. Pistillate flower: pedicel white to pink, with red linear dots, 2–3 cm long, 1.5 mm in diameter; corolla 30–38 mm in diameter; tepals 5, white, glabrous, outer 4 widely ovate, 1.8–2.2 × 1.1–1.5 cm, inner 1 smaller, narrowly ovate, 1.8 × 1.1 cm; styles 2, free, stigma 2, golden yellow, U-shaped, 4–5 mm long, 2 circles spiraled. Ovary glabrous, 2 loculed, placentation axile, placentae bifid per locule. Capsule nodding, ovoid, glabrous, unequally 3-winged; abaxial wing nearly round-rectangular, 20–30 × 10–15 mm; lateral wings shorter, 2–4 × 12–15 mm. Seeds numerous, brown, ellipsoid to ovoid.

Etymology: The specific epithet “austroyunnanensis” refers to the type locality in southern Yunnan. Chinese name is proposed here as “滇南秋海棠” (滇南- refer to the southern Yunnan province, 秋海棠 - refer to *Begonia*).

Phenology: Flowering December to January, fruiting January to February.

Distribution and habitat: Endemic to China, Yunnan province, Menglian county, Mangxin town. Growing on shaded rocky limestone slopes in broadleaved forest near village at an elevation of 920 m.

Conservation status:—*Begonia austroyunnanensis* is geographically limited to the type location with less than 100 mature individuals growing on the limestone hills surrounded by croplands and the natural habitat has been severely disturbed by human activities. Although further survey is needed on its actual distribution and population size, this species should be considered to be “Critically endangered” (CRB1(ac(i))) based on the

current data with a narrow distribution range, and the population possibly continuing decline due to habitat disturbance such as the expansion of croplands in the future according to the IUCN Red List Categories and Criteria (IUCN 2017).

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