



A new species of *Begonia* Linn. (Begoniaceae) in karst regions from Guizhou, China

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Karst regions provide a special environment for plant development, and have a highly endemic flora. A tuberous *Begonia* species, collected from a limestone mountain in Guizhou province, has been confirmed to be new to science, described and illustrated here. In sect. *Diploclinium*, the new species, *Begonia zunyiensis* S.Z.He & Y.M.Shui sp. nov., is similar to *B. labordei* H.Lév., but differs in having lanceolate leaves, fused filaments and styles, and the largest wing on the fruit being falciform.

Keywords: Begoniaceae, *Begonia*, Guizhou, new species, geophyte

Introduction

During examination of *Begonia* Linn (1753: 1056) specimens in the herbarium of the Guizhou Institute of Medical Plants, we found a specimen from Zunyi County in Guizhou province which did not match any known taxa. After the further study of the literature (Smith *et al.* 1986, Zhang 1989, Wu *et al.* 1995, Ku 1999, Shui & Huang 1999, Shui 2002, Ku *et al.* 2007, Shui & Chen 2017), we confirm that the species is new to science, and is named *Begonia zunyiensis* S.Z.He & Y.M.Shui.

Taxonomic treatment

Begonia zunyiensis S.Z.He & Y.M.Shui, sp. nov.

Type—China. Guizhou province, Zunyi City, on shady and moist cliffs, 20 September 1986, *Exped. for Generally Investigating Chinese Traditional Medicine 13* (holotype, KUN, barcode 0094061; isotype, HGCM). Figure 1.

Tuberous, perennial herb, 5–10 cm tall, without erect stems. Tuber irregularly globose, ca. 6 mm in diameter, with many fibrous roots. Leaf solitary, basal; petioles 6.5–7 cm long, with sparse hairs 0.3–1.5 mm long; lamina chartaceous, lanceolate, 8–9 cm long, 2.5–3 cm wide, apex acuminate, base symmetric, round or broadly cuneate, margin serrulate and with cilia 0.4–0.5 mm long; adaxially laxly covered with whitish setae ca. 0.2 mm long; abaxially sparsely red strigose 0.5–0.7 mm long and white strigose 0.5–1 mm long along veins; venation abaxially convex, palmate 6–7 primary veins, directly extended to the margin, lateral veins pinnate along the midrib, with 2 or 3 major veins on each side; stipules caducous. Inflorescence cymose, 9.5–10 cm long, arising from the tuber, with 4–8 flowers; peduncles ca. 5 cm long; bracts oblong, ca. 8 × 2 mm, glabrous, margin serrulate and fimbriate. Staminate flower: tepals 4, pinkish, outer 2 tepals ovate, ca. 8 × 6 mm, sparsely covered with red setae 0.3–0.8 mm long, inners 2 tepals ovate-lanceolate, ca. 8 × 1.5 mm; androecium hemispherical, yellow, ca. 2 mm long, filaments fused above the middle, column ca. 0.5 mm long; filaments ca. 1 mm long, anthers ca. 1 mm long. Pistillate flower: tepals 4, pink, glabrous, outer 2 ovate-oblong ca. 6 × 5 mm, inner 2 oblanceolate, 5.5–6 × 1.8–2 mm. Styles 3, ca. 2.3 mm long, fused above the middle, apex slightly lobed, caducous in fruit; stigmas U-shaped, margins covered with papillae. Ovary 3-locular, placentation axile, with 2 placental segments per locule. Capsule nodding, 4–5 × 4–4.2 mm (wings excluded), sparsely pilose; wings 3, the largest one falciform, 3.5–4 mm high, 2–3 mm wide, ascending, middle sized wing triangular, ca. 2.5 mm high, ca. 1.5 mm wide, the smallest wing, ca. 0.5 mm high, ca. 2.5 mm wide.

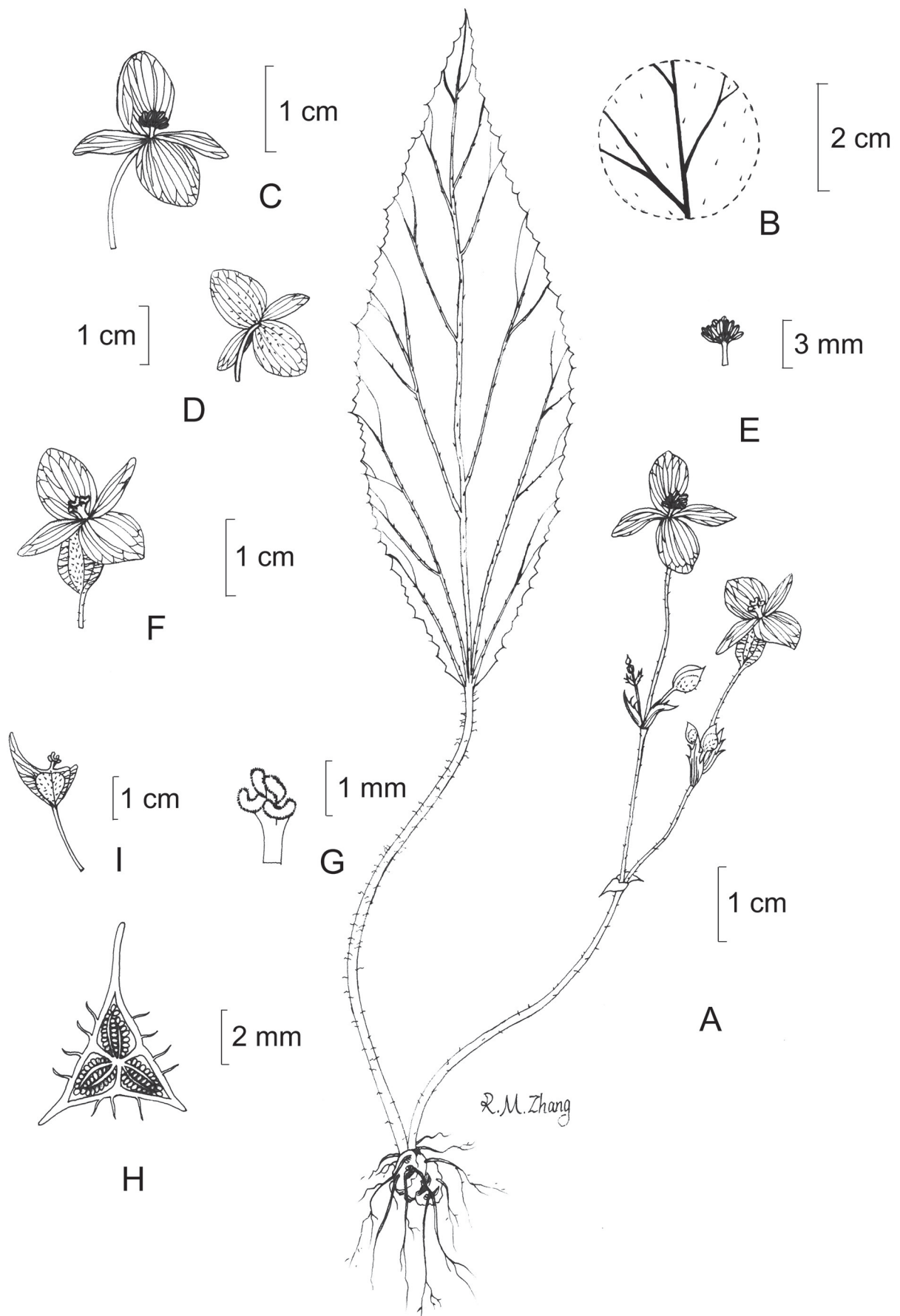


FIGURE 1. *Begonia zunyiensis* S.Z. He & Y.M. Shui, *sp. nov.* A, Habit; B, Abaxial leaf surface; C, Front view of male flower; D, Rear view of staminate flower; E, Stamens; F, Pistillate flower; G, Styles and stigmas; H, Transverse section of ovary; I, Capsule. Drawn by Rong-Mei Zhang based on the holotype.

Diagnostic description:—It is similar to *B. labordei* Lév. (1904: 323), sharing staminate and pistillate flowers with four tepals, but differs in its lanceolate leaves (vs broadly ovate), largest fruit wing falciform with superior margin ascending (vs triangular, superior margin horizontal).

Ecology:—The species grows on shady and moist limestone rocks.

Distribution:—Known only from a small population at the type locality in Guizhou province, China.

Phenology:—Flowering from August to October.

Usage:—The species' local name is “Yi-kou-xue”; the plant is used as traditional medicine.

Discussion:—Among Chinese *Begonia*, there are three species that have lanceolate leaves with cuneate bases. Two species, *B. yingjiangensis* S.H.Huang (1999: 18) and *B. rongjiangensis* T.C.Ku (1995: 279) belong to *Begonia* sect. *Platycentrum* (Klotzsch 1855: 123) de Candolle (1859: 134), and the third one, viz. the new species proposed here, belongs to Sect. *Diploclinium* (Lindl. 1846: 319) de Candolle (1859: 129). The new species belongs in *Begonia* sect. *Diploclinium* due to its tuberous habit and bifid axile placentae. The new species is also similar to *B. xingyiensis* T.C.Ku (1995: 263) in its stemless and tuberous habit, and staminate and pistillate flowers with four tepals, but differs in its strigose lanceolate leaves with a cuneate base (vs sparsely villous, broadly ovate with a cordate base). Finally, the new species is also similar to *B. gigabraceata* H.Z. Li & H. Ma (2008: 157) in its stemless and tuberous habit, staminate flowers with four tepals but differs in its lanceolate leaves (vs slightly oblique, obovate), lamina abaxially sparsely strigose (vs both sides glabrous), pistillate flowers with four tepals (vs with 5 tepals).

TABLE 1. Comparison of *Begonia zunyiensis*, *B. labordei* Lév., *B. xingyiensis* T. C. Ku and *B. gigabraceata* H.Z. Li & H. Ma.

Characters	<i>B. zunyiensis</i> , sp.nov.	<i>B. labordei</i>	<i>B. xingyiensis</i>	<i>B. gigabraceata</i>
Leaves	lanceolate, 8–9 × 2.5–3 cm	broadly ovate, 10–25 × 6–22 cm	ovate, 4.5–6 × 4.5–6 cm	slightly oblique, obovate, 7.6–10.7 × 4.5–8.2 cm
Base of leaves	base symmetric, round or broadly cuneate	base cordate, oblique	base shallowly cordate, slightly oblique	base cordate, basal lobes overlapping or not
Indumentum on abaxial surface	strigose	setaceous	sparsely villous	glabrous
Inflorescence peduncle	subglabrous	glabrous	subglabrous	slightly glandular hairy
Tepals of flowers	both staminate and pistillate tepals 4	both staminate and pistillate tepals 4	both staminate and pistillate tepals 4	staminate flowers tepals 4, pistillate flowers tepals 5
Largest wings	falciform, superior margin ascending	obliquely triangular, superior margin horizontal	triangular, superior margin horizontal	triangular, superior margin descending

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