

## *Impatiens angulata* (Balsaminaceae), a new species from Guangxi, China

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*Impatiens angulata* S. X. Yu, Y. L. Chen et H. N. Qin sp. nov. (Balsaminaceae), a new species from Guangxi, China, is described and illustrated. This species is close to *I. hainanensis* in morphological characters. Both have succulent stems, 4 lateral sepals, connected upper lobes of lateral united petals, but are distinguished by the base of stems with 6–9 ridges, leaves oblong or oblanceolate, the outer lateral sepals with 9 veins, inner lateral sepals ovate and dorsal sepal with deep bilobate spur.

The genus *Impatiens* L. belongs to the family of Balsaminaceae which only contains two genera currently recognized: the monotypic *Hydrocera* and the prolific *Impatiens*. As a primary and Old World genus, it contains about 1000 species (Grey-Wilson 1980). Most species are distributed throughout much of tropical Africa, India, southwest Asia, southern China, and Japan. There are also a few species within the north temperate zone of Europe, the USSR and North America (Grey-Wilson 1980).

In China, *Impatiens* has about 220 species (Chen 2001), with the majority restricted to the south-west China, such as Yunnan, Sichuan, Guizhou, Xizang (Tibet) and Guangxi.

The first author carried out field exploration in Guangxi from 2004 to 2006, and collected many species of *Impatiens*, studied the morphology, especially of the flower, and the distribution. The species described here was confirmed as a new species after careful comparison with previously described species.

### *Impatiens angulata* S. X. Yu, Y. L. Chen et H. N. Qin sp. nov. (Fig. 1–3).

*I. hainanensis* affinis, sed caulibus angulatis, foliis oblongis vel oblanceolatis, sepalis exterioribus ovato-oribucularis, cuspidatis, venulis 9, sepalis interioribus ovatis, calcari apice profunde bilobato, petalo dorsali dorso crestato bene differt.

**Type:** China. Guangxi, Longzhou County. Apricus places in the limestone reigon, alt. 200–300 m a. s. l., 2

May 2006, Yu Sheng-Xiang 3777 (holotype PE, isotype IBK).

Perennial herb, 30–50 cm tall, glabrous. Stems succulent, with 5–7 ridges, erect, the base swollen, upward branched or not. Leaves alternate, aggregated towards the top of the stems; petiole 1.5–2.5 cm long, with two big glands towards the top. Blades 11–15(–17) cm long, 3–4.5 cm wide, oblong or oblanceolate; the lateral veins in 7–9 pairs, the margin shallowly crenate-serrate, with a single narrow tooth bent under, the apex acuminate or acute, the base crenate, decurrent along the petioles. Flowers 2, fascicled axillary, pink or pale purple. Bracts 2–4 mm long, ovate, inconspicuous. Pedicels 1.5–2 cm long, slender, glabrous. Lateral sepals 4, the outer pair 1.1–1.2 cm long, 1.0–1.1 cm wide, oblique ovate or ovate-orbicular, 9-veined, the midnerve obvious, the apex mucronate. The inner pair ca 0.5 mm long, very litter, ovate, scale-formed. Lower sepal 2.3–2.5 cm long, ca 1 cm deep, infundibuliform, the base abruptly constricted into a 5–7 mm long, incurved, deeply bilobed spur. Dorsal petal ca 2 cm long, ca 1 cm wide, ovate-orbicular or oblong, the apex concave, dorsally with a broad crest terminating in a short point. Lateral united petals 3.2–3.5 cm long, 2-lobed, the lower lobes of each pair 2.0–2.2 cm long, ca 1.8 wide, oblong or obovate, entire or slightly emarginate; the upper lobes of each pair 1.5–1.7 cm long, 1.2–1.4 cm wide, suborbicular, the apex slightly emarginate, mucronate, connected with each other in lamella. Stamens 5; the filaments flat; the anthers obtuse. Ovary glabrous. Capsule 1.3–1.5 cm long, fusiform, glabrous. Flowering in March–April, fruiting in April–May.

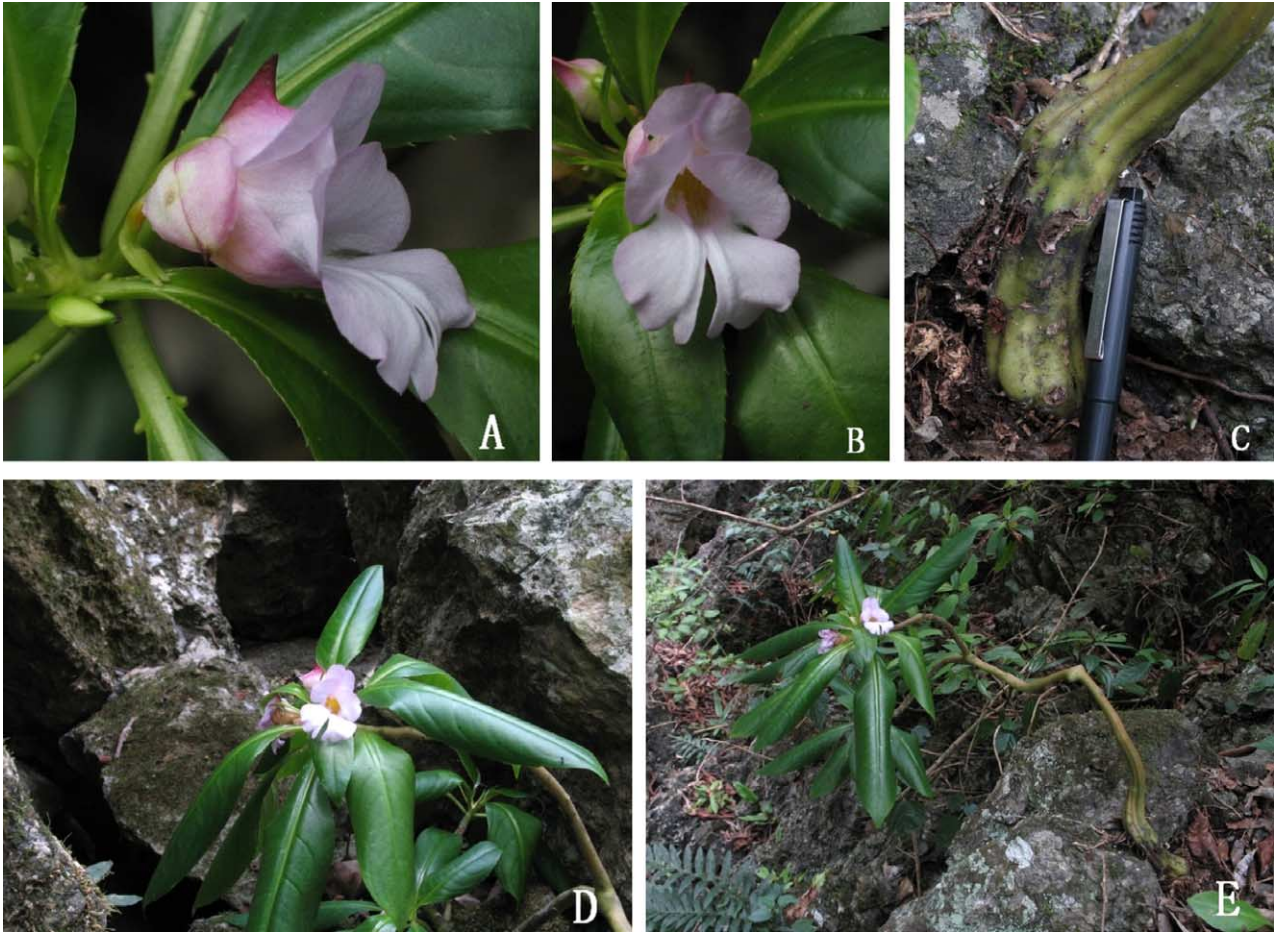


Fig. 1. *Impatiens angulata* (photographed by S. X. Yu from Guangxi). (A)–(B) flowers, (C) stem, (D) flower branches, (E) habit.

### Distribution and habitat

*Impatiens angulata* grows sparsely in small populations, and has only been found in the limestone regions, south of

Guangxi, near Vietnam. Maybe it is also distributed in Vietnam, at altitudes between 200–300 m.

After detailed studies, we found that *Impatiens angulata* is close to *I. hainanensis*. However, upon a careful



Fig. 2. Distribution of *Impatiens angulata* (■) and *I. hainanensis* (●).

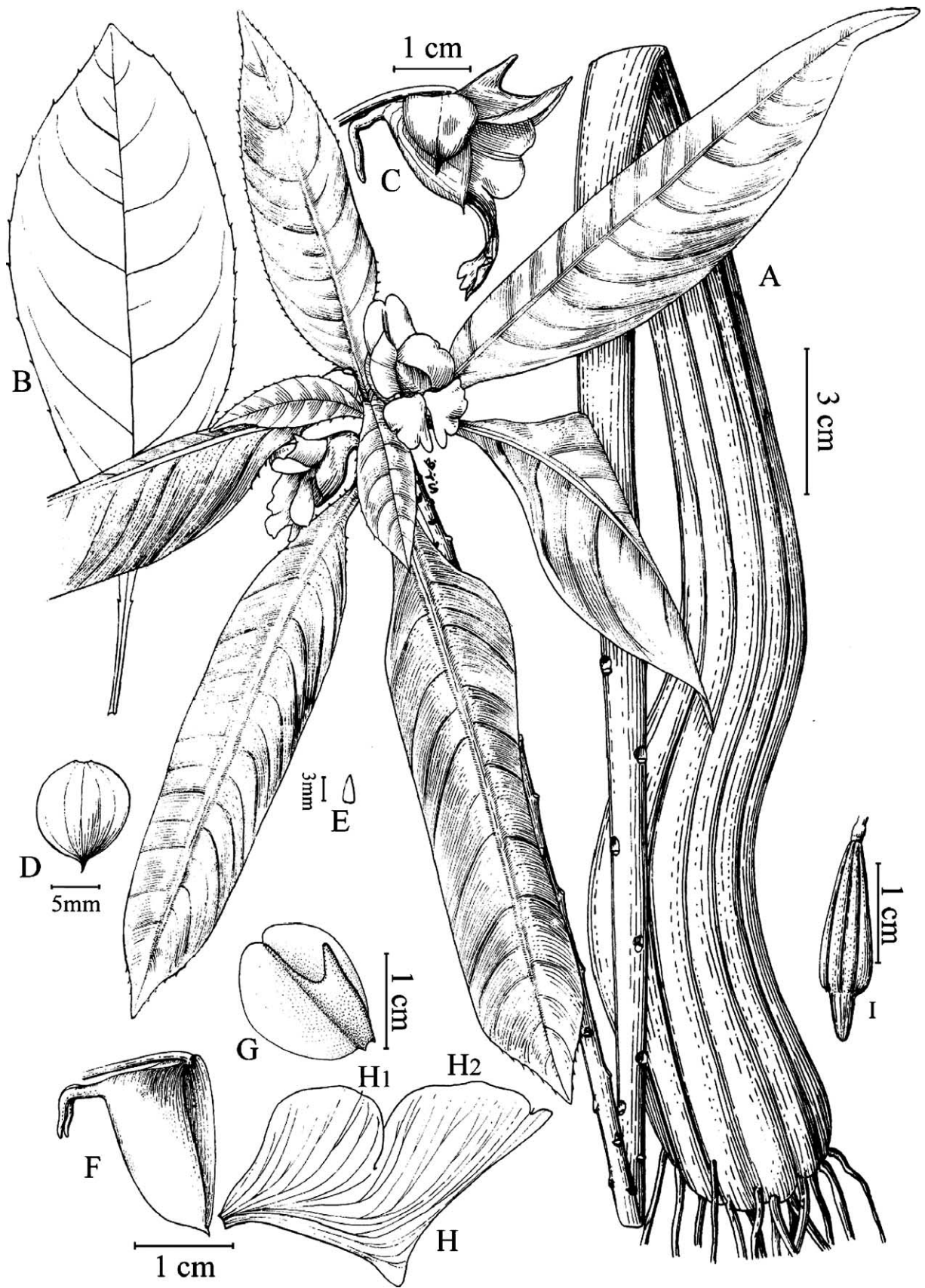


Fig. 3. Linedrawings from the holotype specimen of *Impatiens angulata* S. X. Yu, Y. L. Chen et H. N. Qin. (A) habit, (B) blade, (C) flower (lateral view), (D) outer lateral sepal, (E) inner lateral sepal, (F) lower sepal, (G) dorsal petal, (H) lateral united petal, (H1) basal lobe, (H2) upper lobe, (I) fruit. Drawn by Y. B. Sun from S. X. Yu 3777.

Table 1. Main differences in morphology between *Impatiens angulata* and *I. hainanensis*.

Characters	<i>I. angulata</i>	<i>I. hainanensis</i>
Stems	with 5–7 ridges	no ridges
Leaves	11–15(–17) 3–4.5 cm; oblong or oblanceolate	5–8 × 2.5–4 cm; ovate or ovate-elliptic
Outer lateral sepals	9-veined	12-veined
Inner lateral sepals	ovate or ovate-orbicular; entire	obovate; bilobate
Dorsal sepals	spur deep bilobate	Spur slight bilobate

comparison, the former can easily be distinguished by the base of stems with 6–9 ridges, the leaves oblong or oblanceolate, the outer lateral sepals with 9 veins, the inner lateral sepals ovate (although *I. hainanensis* was incorrectly described as having only 2 outer lateral sepals when published, we checked the holotype and it has 4 lateral sepals and the 2 inner lateral sepals slightly bilobed), the dorsal sepal with deep bilobate spur. A closer comparison of the two species is made in Table 1.

### Additional specimens examined (paratypes)

China. 3 May 1965 Chen Xiu-xiang & Huang Xiao-Mei 21598, Guangxi, Longzhou, Kejia (GXMI).

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