

# Novelties in *Begonia* sect. *Platycentrum* for China: *B. crocea*, sp. nov. and *B. xanthina* Hook., a new distributional record

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(Received August 18, 2005; Accepted December 3, 2005)

**ABSTRACT.** *Begonia crocea* C.-I Peng, a new species from Yunnan province, China and *B. xanthina* Hook., a new distributional record for China are here reported and fully illustrated. Both of them are assignable to *Begonia* sect. *Platycentrum*. Unlike the great majority of Chinese species with white to pink flowers, *B. crocea* and *B. xanthina* are remarkable for bearing orange-red and yellow flowers respectively, which is of much horticultural attraction. *Begonia crocea* resembles *B. megalophyllaria* in aspect, differing mainly in having densely pilose petioles, the leaves being sparsely pilose abaxially, and having orange-red tepals. Plants of *B. megalophyllaria* are glabrous throughout and their tepals are white, sometimes tinged greenish. *Begonia xanthina* is somewhat similar to *B. rex*, a notable plant of tremendous horticultural interest, but is readily distinguishable by the yellow tepals and leaves that lack long setose hairs and horseshoe-shaped maculation. In *B. rex* the tepals are pinkish to pink and the leaves are setose and marked with a distinct grayish to pale greenish horseshoe-shaped band on the adaxial surface.

**Keywords:** *Begonia*; *Begonia crocea*; *Begonia megalophyllaria*; *Begonia rex*; *Begonia xanthina*; China; New distribution; New species; Plant taxonomy; Yunnan.

## INTRODUCTION

In the course of preparing a taxonomic revision of Begoniaceae for the Flora of China in recent years, the senior author and his associates reported the discovery of a number of new species in *Begonia* sect. *Coelocentrum* [*B. curvica* and *B. luochengensis* (Ku et al., 2004); *B. fangii* (Peng et al., 2005c); *B. liuyanii* (Peng et al., 2005b); *B. picturata* (Liu et al., 2005); *B. ningmingensis*, *B. ningmingensis* var. *bella* and *B. retinervia* (Fang et al., 2006)], *B. sect. Diploclinium* [*B. chuyunshanensis* and *B. tengchiana* (Peng et al., 2005a)] and *B. sect. Platycentrum* [*B. coptidifolia* (Ye et al., 2004); *B. bouffordii*, *B. pinglinensis*, *B. wutaiensis* (Peng et al., 2005a); *B. rubinea* (Li et al., 2005)]. Nearly all of them are narrow endemics and many are stunningly handsome plants. In this paper we report an additional new species, *Begonia crocea*, and a new distributional record, *B. xanthina*, both assignable to *B. sect. Platycentrum* (cf. Shui et al., 2002), for China. Unlike the great majority of Chinese species with white to pink flowers, *B. crocea* and *B. xanthina* are remarkable for bearing orange-red and yellow flowers respectively, and thus are of much horticultural potential.

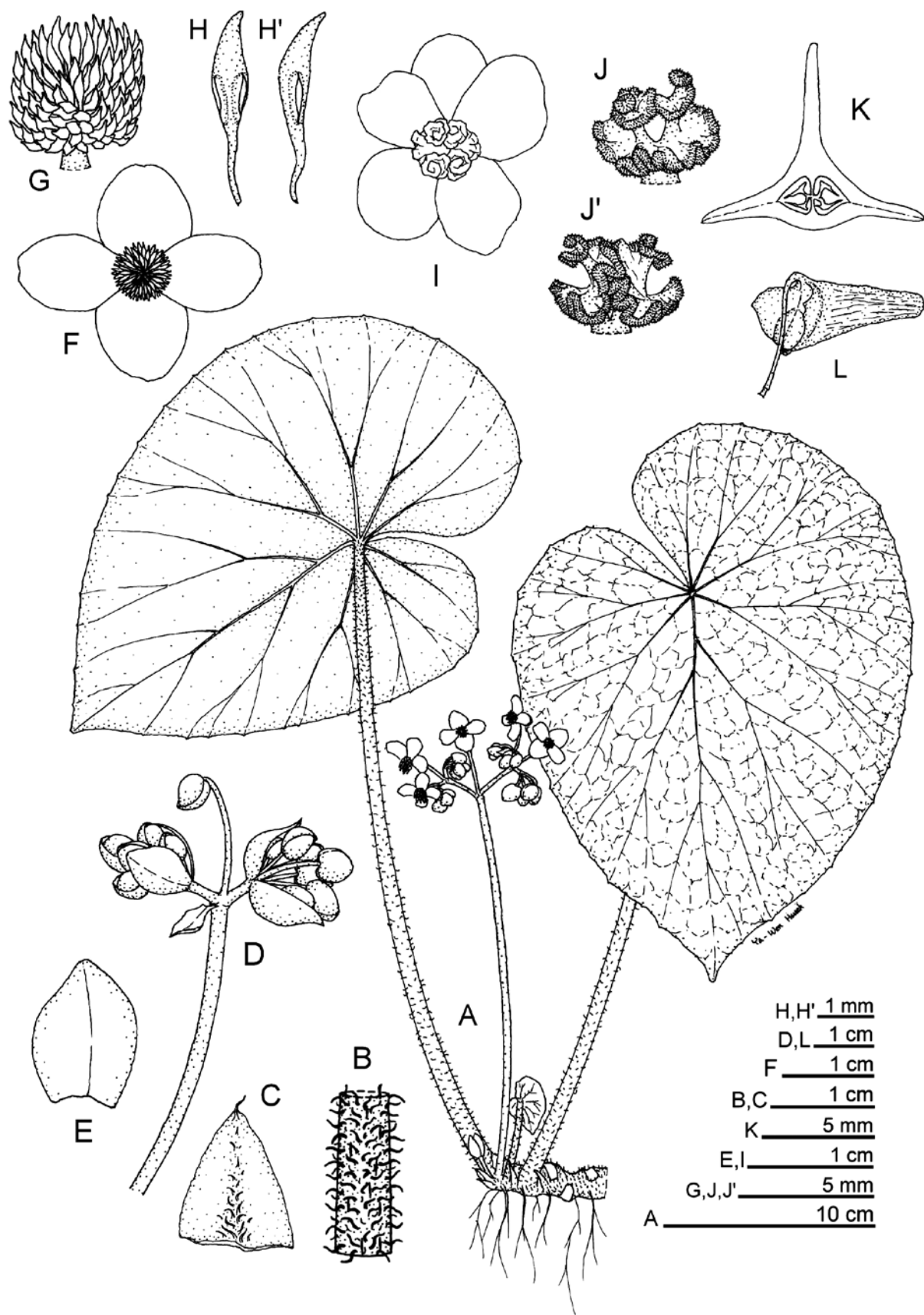
## Description

**1. *Begonia crocea* C.-I Peng sp. nov.** (*B. sect. Platycentrum*) – TYPE: CHINA. Yunnan Province, Jiangcheng Xian, Jiahe Xiang, on moist rocky slope in broad-leaved forest, 22°45'03"N, 101°53'33"E, elev. 1,200 m. Sterile living collection made on 11 Jun 2000; type specimens (in flower and fruit) pressed from plants cultivated in the experimental greenhouse at Academia Sinica, 15 Aug 2005, *Ching-I Peng 18032-A* (holotype: HAST; isotype: KUN). 橙花秋海棠 (Figures 1, 2)

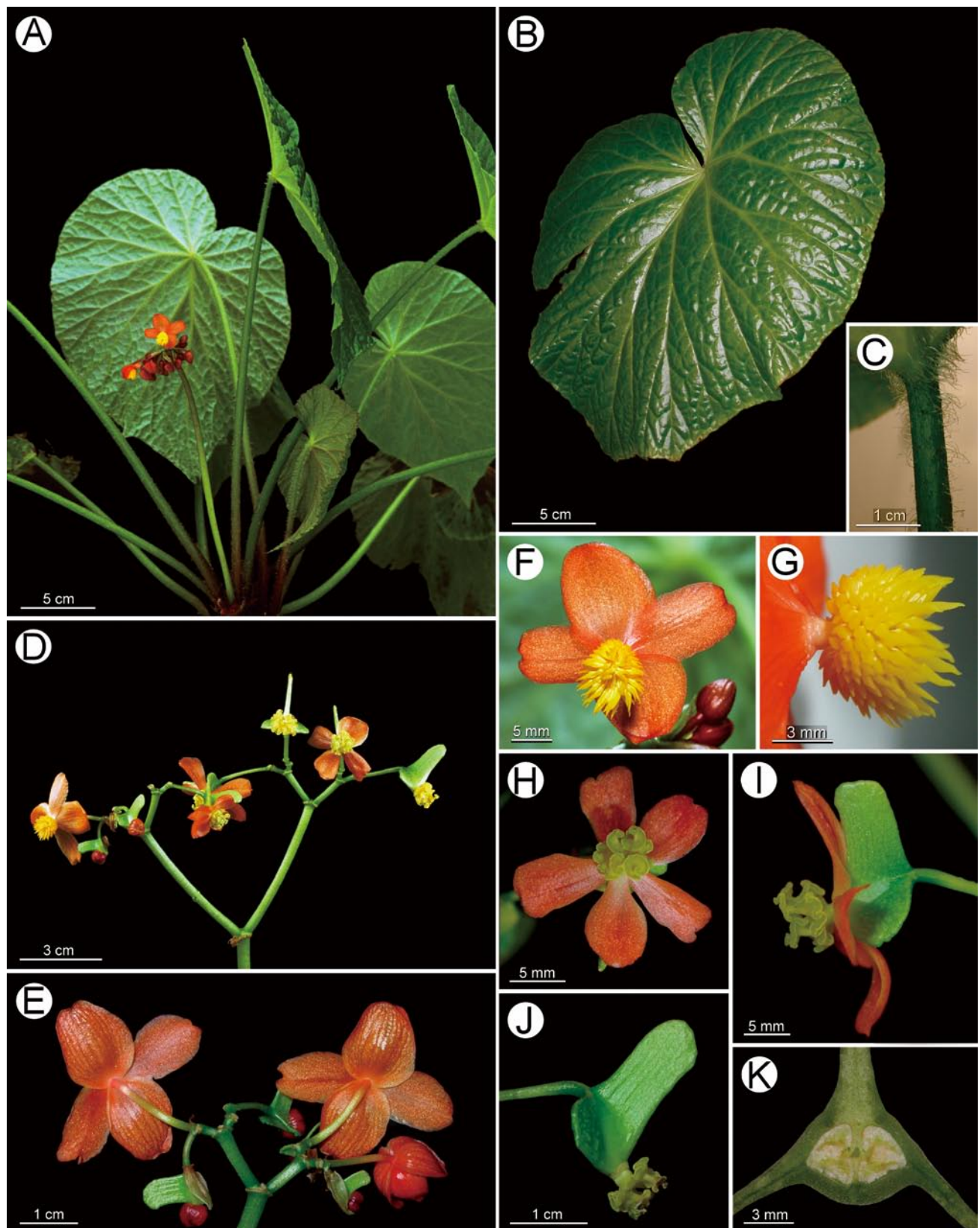
Species nova similis *Begoniae megalophyllariae* C. Y. Wu, sed foliis infra sparse pilosis, petiolis dense pilosis, tepalis croceis facile distinguitur.

Herbs, perennial, acaulescent, monoecious. Rhizomes elongate creeping, to 2 cm thick, pilose, internodes congested. Stipules triangular, to 1.5 cm long, to 1 cm wide, glabrous or pilose along midrib, margin entire, apex cuspidate, caducous. Leaves fasciculate, alternate; petiole green, reddish toward base, 34-41 cm long, 0.9-1 cm thick, densely whitish pilose, denser toward junction with leaf blade; leaf blade herbaceous, green, not variegated, somewhat lustrous on adaxial surface, broadly ovate, asymmetric, to 30.5 cm long, to 24 cm wide, sparsely pilose along veins on abaxial surface, glabrous on adaxial surface, base oblique, deeply cordate, not overlapping, margin remotely minutely serrulate, apex acute; venation

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**Figure 1.** *Begonia crocea* C.-I. Peng. A, Habit; B, Portion of petiole; C, Stipule; D, Young inflorescence, showing flower buds; E, Bract; F, Staminate flower; G, Androecium, showing a short androphore; H, H', Stamens; I, Carpellate flower; J, J', Stigmas; K, Ovary, cross section; L, Capsule. (All from the same plant from which the holotype, *Ching-I Peng 18032-A*, HAST, was taken.)



**Figure 2.** *Begonia crocea* C.-I Peng. A, Habit; B, Leaf, showing upper surface; C, Distal portion of petiole; D, Inflorescence; E, Inflorescence, showing rear surfaces of staminate flowers; F, staminate flower; G, Androecium; H, Carpellate flower, adaxial view; I, Carpellate flower, lateral view; J, Fruit in early stage; K, Middle cross section of immature capsule. (All from the same plant from which the holotype, *Ching-I Peng 18032-A*, HAST, was taken.)

palmate, 9-10-nerved. *Inflorescences* arising directly from the rhizome, axillary, cymose, shorter than to nearly as tall as leaves, 16-34 cm long, with 7-22 staminate flowers and 3-8 carpellate flowers; peduncle green, dotted with short reddish lines, 12.5-25 cm long, 4-5.8 mm thick, glabrous; bracts in pairs, reddish, ovate, to 2.1 cm long, to 1.2 cm wide, glabrous, margin entire, apex acute. Flower buds orange-red, lustrous and waxy, subglobose; tepals orange-red, glabrous. *Staminate flowers*: pedicel greenish, orange-red toward junction with flower, 1.2-1.8(-3.1) cm long, glabrous; tepals 4, outer 2 ovate, 1.1-1.8 cm long, 1.1-1.4 cm wide, apex retuse, inner 2 elliptic or narrowly obovate, 1.1-1.8 cm long, 0.9-1.1 cm wide, apex obtuse to retuse; androecium actinomorphic, shortly columnar, ca. 7.5 mm long and thick, stamens ca. 100 or more, yellow, filaments 2.5-3.5 mm long, basally fused into a short androphore, anthers fusiform to obovate, 1.5-4.5 mm long, connective extended, apex acuminate. *Carpellate flowers*: pedicel greenish, 1.3-1.5 cm long, glabrous; tepals 5, subequal, obovate, 1-1.2 cm long, 0.8-1 cm wide, apex obtuse or retuse; ovary greenish at anthesis, ellipsoid, unequally 3-winged, glabrous, 2-locular; placentae axile, bilamellate; styles 2, yellow, 2-cleft, 5-5.6 mm long, free; stigmas in a strongly spiraled band. *Infructescences* 17-36 cm long; capsules nodding, unequally 3-winged, abaxial wing narrowly oblong, 17-18 mm long, 8-8.5 mm wide, apex obtuse, lateral wings much smaller, 6.5-7 mm long. Seeds numerous, ca. 0.3 mm long, chalazal end rounded, lip of seed nipple-shaped, micropylar end constricted.

*Distribution*. Known only from Jiangcheng Xian, Yunnan Province, China; at ca. 1,200 m altitude (Figure 3).

*Notes*. *Begonia crocea* is one of the very few species in Asia with orange-red tepals. It resembles *B. megalophyllaria* in aspect, differing mainly in having densely pilose petioles, the leaves being sparsely pilose abaxially and having orange-red tepals. *Begonia megalophyllaria* is glabrous throughout and its tepals are white, sometimes tinged greenish. The specific epithet is derived from the orange red tepals. A comparison of the

salient characters of the two species is shown in Table 1.

**2. *Begonia xanthina* Hook., Bot. Mag. 78. t. 4683. 1852.**  
黄瓣秋海棠 (Figures 4, 5)

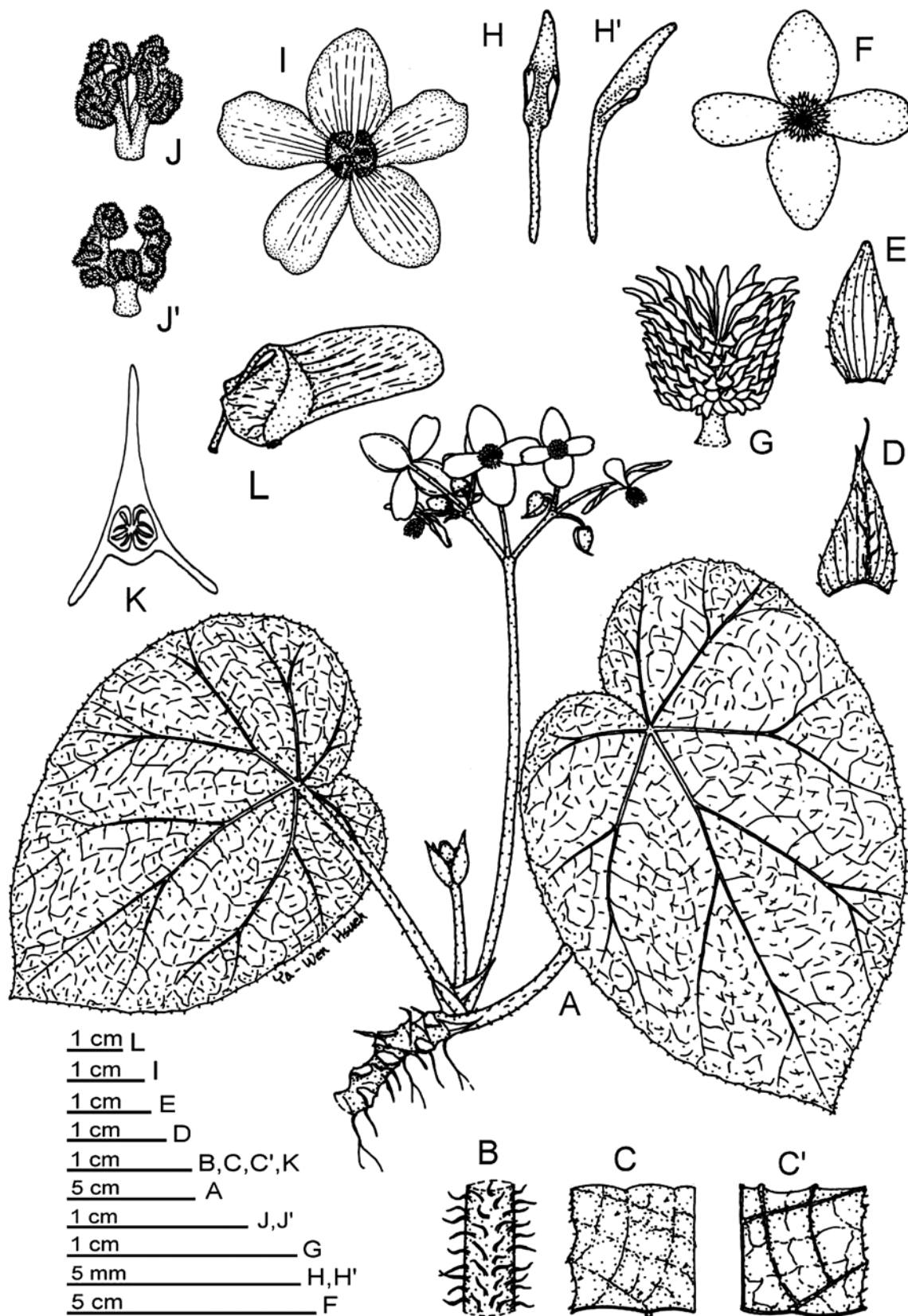
Herbs, perennial, acaulescent, monoecious. Rhizomes elongate creeping, to 2 cm thick, pilose, internodes congested. Stipules triangular, to 1.9 cm long, to 0.9 cm wide, abaxially puberulent, sometimes pilose on midrib, margin entire, apex acuminate, caducous. *Leaves* fasciculate, alternate; petiole reddish brown, shallowly several grooved, 17-37 cm long, 0.9-1.4 cm thick, whitish pilose and densely puberulent; leaf blade herbaceous, dull, reddish on abaxial surface, dark green with pale green and grayish spots between main veins on adaxial surface, ovate to narrowly so, asymmetric, 24-36 cm long, 13.5-23 cm wide, sparsely pilose along veins on abaxial surface, sparsely setulose on adaxial surface, base oblique, deeply cordate, sometimes slightly overlapping, margin remotely minutely serrulate, somewhat ciliate, apex acute; venation palmate, 7- or 8-nerved. *Inflorescences* arising directly from rhizome, axillary, cymose, shorter than or as tall as leaves, 15-19.5 cm long, with 6-10 staminate flowers and 3-6 carpellate flowers; peduncle reddish or greenish, 11.5-15 cm long, 3-5 mm thick, glabrous; bracts in pairs, reddish, ovate or broadly so, 2-2.2 cm long, 1.8-2 cm wide, glabrous, margin entire, apex acute to acuminate. Flower buds greenish yellow, sometimes tinged brownish, ovoid; tepals yellow, glabrous. *Staminate flowers*: pedicel yellowish green, 2.7-4.2 cm long; tepals 4, outer 2 ovate, 1.5-2 cm long, 0.9-1.3 cm wide, apex obtuse, inner 2 narrowly obovate to broadly oblanceolate, 1.7-1.9 cm long, 0.6-1 cm wide, apex obtuse or crenate; androecium actinomorphic, shortly columnar, ca. 8 mm long, ca. 6 mm thick, stamens 80-160, yellow, filaments 2.5-4 mm long, basally fused into a short androphore, anthers fusiform to obovate, 1-4.5 mm long, connective extended, apex acuminate. *Carpellate flowers*: pedicel greenish, 1.5-2.8 cm long, glabrous; tepals 5, unequal, obovate, apex obtuse or retuse, outer tepals 1.8-2.1 cm long, 1.0-1.1 cm wide, inner tepals narrowly obovate, 1.7-1.8 cm long, 7-8 mm wide, apex retuse or crenate; ovary greenish at anthesis, ellipsoid, unequally 3-winged, glabrous, 2-locular; placentae axile, bilamellate, styles 2, yellow, 2-cleft, 3.5-4.5 mm long, free; stigmas in a strongly spiraled band. *Infructescences* 42-47 cm long; capsules nodding, unequally 3-winged, abaxial wing ligulate or falcate, 18-22 mm long, 14-16 mm wide, apex obtuse or bluntly truncate, lateral wings much narrower, 6-9 mm long. Seeds numerous, ca. 0.3 mm long, chalazal end rounded, lip of seed nipple-shaped, micropylar end constricted.

*Specimens examined*. CHINA, Yunnan Province, Yingjiang Xian, Nabang, Tongbiguan Nature Reserve, along hiking trail from Mengnaihe Power Station to Batou, ca. 1 km NE of the power station, on rock in shaded, moist, evergreen broad-leaved forest, 24°43'01" N, 97°35'00" E, elev. ca. 300 m, 31 Oct 2002, Ching-I Peng 19062 (HAST).

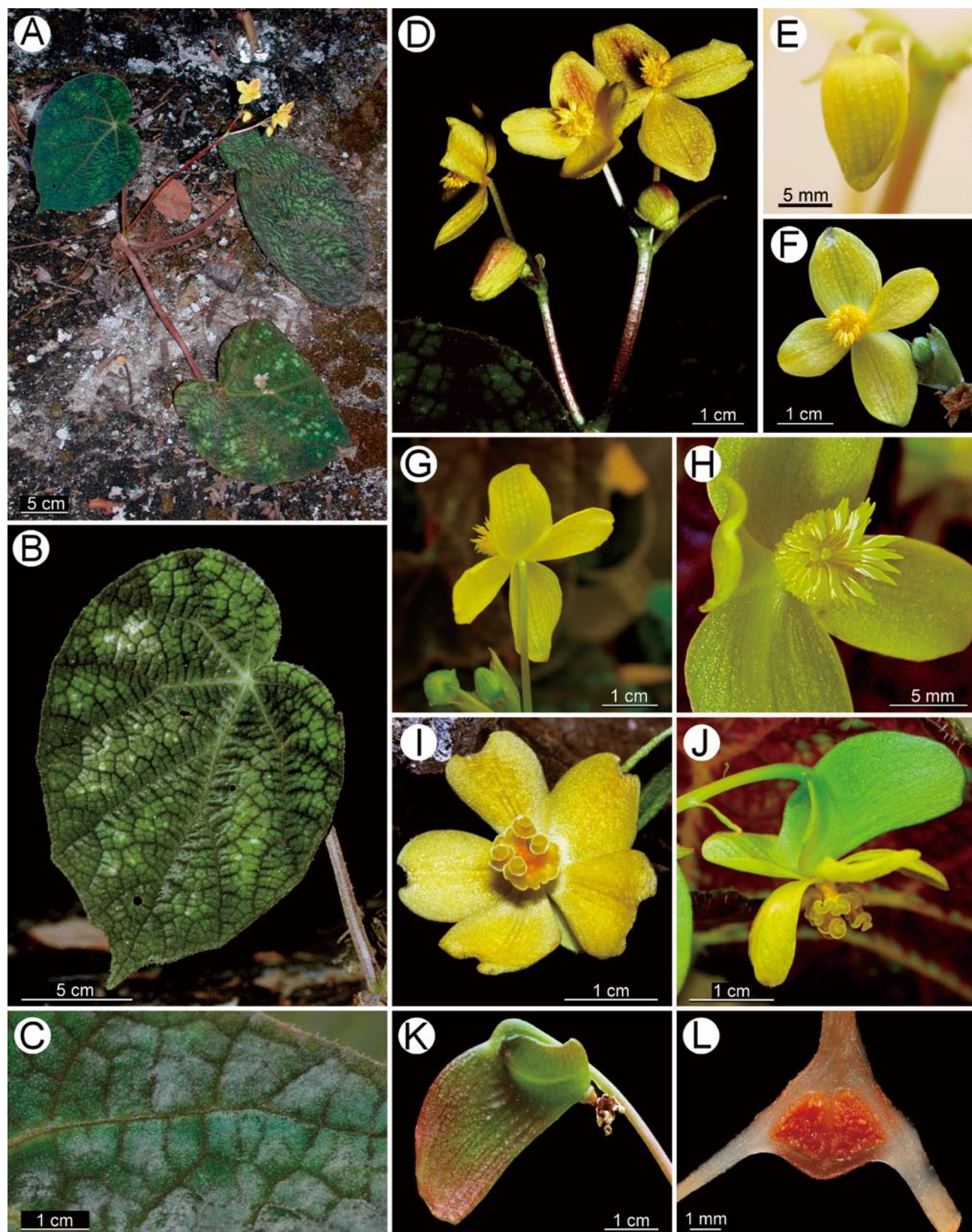


**Figure 3.** Distribution of *Begonia crocea* (★) and *B. xanthina* (▲) in Yunnan Province, China.





**Figure 4.** *Begonia xanthina* Hook. A, Habit; B, Portion of petiole; C, Leaf, adaxial surface, C', Abaxial surface; D, Stipule; E, Bract; F, Staminate flower; G, Androecium; H, H', Stamens; I, Carpellate flower; J, J', Stigmas; K, Ovary, cross section; L, Capsule. (From the same plant from which *Ching-I* Peng 19062 was taken.)



**Figure 5.** *Begonia xanthina* Hook. A, Habit; B, Leaf; C, Leaf, adaxial surface; D, Inflorescence; E, Staminate flower bud; F, Staminate flower, adaxial view; G, Staminate flower, abaxial view; H, Androecium; I, Carpellate flower, adaxial view; J, Carpellate flower, lateral view; K, Capsule; L, Ovary, cross section of material preserved in FAA. (A, B from the actual specimen *Ching-I Peng* 19062 before it was pressed; C-L from the same plant from which *Ching-I Peng* 19062 was taken.)

**Table 1.** Comparison of *Begonia crocea*, *B. megalophyllaria*, *B. xanthina* and *B. rex*.

	<i>Begonia crocea</i>	<i>B. megalophyllaria</i>	<i>B. xanthina</i>	<i>B. rex</i>
Stipule	Glabrous or pilose along midrib	Glabrous	Puberulent, sometimes pilose along midrib	Glabrous
Leaf				
Texture	Lustrous	Lustrous	Dull	Dull
Maculation	Absent	Absent	Pale green spots in intercostal areas on adaxial surface	One pale grayish green horseshoe-shaped band on adaxial surface
Abaxial surface color	Greenish	Greenish	Reddish	Reddish
Shape	Broadly ovate	Broadly ovate	Ovate to narrowly so	Narrowly to broadly ovate
Size (cm)	to 30.5 × 24	to 34 × 24-26.5	24-36 × 13.5-23	6-33 × 5-21
Indumentum				
Petiole	Densely pilose	Glabrous	Pilose and densely puberulent	Glabrous to sparsely pilose and densely puberulent
Adaxial surface	Glabrous	Glabrous	Sparsely setulose and puberulent	Sparsely setulose, puberulent and often long setose
Abaxial surface	Sparsely pilose along nerves	Glabrous	Sparsely pilose and puberulent along nerves	Glabrous to sparsely pilose and puberulent along nerves
Flower buds				
Shape	Subglobose	Subglobose	Ovoid	Ovoid
Texture	Lustrous & waxy	Lustrous & waxy	Not lustrous & waxy	Not lustrous & waxy
Tepals	Orange-red	White, sometimes tinged greenish toward base	Yellow	Pinkish to pink
Anther connective	Extended, acuminate at apex	Extended, acuminate at apex	Extended, acuminate at apex	Extended, acuminate at apex

*Distribution.* India (Darjeeling and Sikkim: Grierson, 1991); a new distributional record for China (Figure 3).

*Notes.* *Begonia xanthina* is similar to *B. rex*, but is readily distinguishable by the yellow tepals and the leaves that lack long setose hairs and horseshoe-shaped maculation. In *B. rex* the tepals are pinkish to pink and the leaves are setose and marked with a distinct grayish to pale greenish horseshoe-shaped band on the adaxial surface. A comparison of the salient characters of the two species is shown in Table 1.

**Acknowledgements.** We thank Nicholas J. Turland, Mark Hughes and Jack Golding for improving the manuscript; Qiner Yang for the Latin diagnosis; Ya-Wen Hsueh for the handsome line drawings; Shin-Ming Ku for technical assistance in the color plates; and Wen-Pen Leu, Yi Tao Liu, Mincho Peng, Yumin Shui and Mao-Lun Weng for

accompanying us in the field. This study was supported in part by the National Science Council, Taiwan and Research Center for Biodiversity, Academia Sinica, Taipei to Ching-I Peng.

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## 中國秋海棠屬二室組植物新知見：新種橙花秋海棠與 新紀錄種黃瓣秋海棠

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本文發表中國雲南產秋海棠屬二室組新種—橙花秋海棠 (*Begonia crocea*) 及新紀錄種—黃瓣秋海棠 (*Begonia xanthina*)。不同於絕大多數中國秋海棠的白色至粉紅色花朵，橙花秋海棠花被片橘紅色，黃瓣秋海棠花被片為黃色，甚具園藝觀賞價值。橙花秋海棠與大葉秋海棠 (*Begonia megalophyllaria*) 相似，但葉柄密被軟長毛，葉背疏生軟長毛，花被片橘紅色；而大葉秋海棠全株光滑無毛，花被片白色或略帶淺綠色。黃瓣秋海棠與著名的園藝植物大王秋海棠 (*Begonia rex*) 相似，但花被片黃色，葉面無長直粗毛及馬蹄形斑紋；而大王秋海棠花被片粉紅色，葉面有淺灰至淺綠色之馬蹄形斑紋。

**關鍵詞：**秋海棠屬；橙花秋海棠；大葉秋海棠；大王秋海棠；黃瓣秋海棠；中國；新紀錄；新種；植物分類；雲南。