云 南 植 物 研 究 2005，27（4）：355～374
Acta Botanica Yunnanica

世界秋海棠属侧膜组植物新资料*

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摘要：记述了秋海棠属侧膜组11新种，即星果草叶秋海棠（*Begonia asteropyrifolia* Y. M. Shui et W. H. Chen）、耳托秋海棠（*B. auritistipula* Y. M. Shui et W. H. Chen）、桂南秋海棠（*B. austroguangxiensis* Y. M. Shui et W. H. Chen）、水晶秋海棠（*B. crystallina* Y. M. Shui et W. H. Chen）、须苞秋海棠（*B. fimbribracteata* Y. M. Shui et W. H. Chen）、巨叶秋海棠（*B. gigaphylla* Y. M. Shui et W. H. Chen）、黄氏秋海棠（*B. huangii* Y. M. Shui et W. H. Chen）、长柱秋海棠（*B. longistyla* Y. M. Shui et W. H. Chen）、扁果秋海棠（*B. platycarpa* Y. M. Shui et W. H. Chen）、喙果秋海棠（*B. rhynchocarpa* Y. M. Shui et W. H. Chen）、多变秋海棠（*B. variifolia* Y. M. Shui et W. H. Chen）；并报道了3新变种及1新名称，即疏毛越南秋海棠（*B. bonii* Gagnep. var. *remotisetulosa* Y. M. Shui et W. H. Chen）、密毛龙州秋海棠（*B. morsei* Irmsch. var. *myriotricha* Y. M. Shui et W. H. Chen）、簇毛伞叶秋海棠（*B. umbraculifolia* Y. Wan et B. N. Chang var. *flocculosa* Y. M. Shui et W. H. Chen）及彩纹秋海棠（*B. variegata* Y. M. Shui et W. H. Chen）。

关键词：新资料；侧膜组；秋海棠属；秋海棠科
中图分类号：Q 949 **文献标识码：**A **文章编号：**0253－2700（2005）04－0355－20

New Data of Sect. *Coelocentrum*（*Begonia*）in Begoniaceae

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Abstract：Eleven new species of sect. *Coelocentrum*（*Begonia* Linn.）in Begoniaceae are described and illustrated，e.g. *Begonia asteropyrifolia* Y. M. Shui et W. H. Chen，*B. auritistipula* Y. M. Shui et W. H. Chen，*B. austroguangxiensis* Y. M. Shui et W. H. Chen，*B. crystallina* Y. M. Shui et W. H. Chen，*B. fimbribracteata* Y. M. Shui et W. H. Chen，*B. gigaphylla* Y. M. Shui et W. H. Chen，*B. huangii* Y. M. Shui et W. H. Chen，*B. longistyla* Y. M. Shui et W. H. Chen，*B. platycarpa* Y. M. Shui et W. H. Chen，*B. rhynchocarpa* Y. M. Shui et W. H. Chen，*B. variifolia* Y. M. Shui et W. H. Chen；three new varieties and a new name are also reported，e.g. *B. bonii* Gagnep. var. *remotisetulosa* Y. M. Shui et W. H. Chen，*B. morsei* Irmsch. var. *myriotricha* Y.

* Foundation item：The National Natural Science Foundation of China granted no. 30270109，the Natural Science Foundation of Yunnan granted no. 2002C0022Q and West Glory Project of CAS in China
Received data：2005－06－05，Accepted data：2005－06－30
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M. Shui et W. H. Chen, *B. umbraculifolia* Y. Wan et B. N. Chang var. *flocculosa* Y. M. Shui et W. H. Chen, *B. variegata* Y. M. Shui et W. H. Chen.

Key words: New data; Sect. *Coelocentrum*; *Begonia*; Begoniaceae

Begonia asteropyrifolia Y. M. Shui et W. H. Chen, sp. nov. Fig. 1

Habitu *B. setoloso-peltatae* C. Y. Wu similis, sed folio convexo-concavo dense strigoso (in illa plano sparsim hispidulo) 2- vel 3-angulato (in illa haud angulato) apice acuminato (in illa apice acuto) inflorescentiis capsulisque dense strigosis (nec glabris) differt.

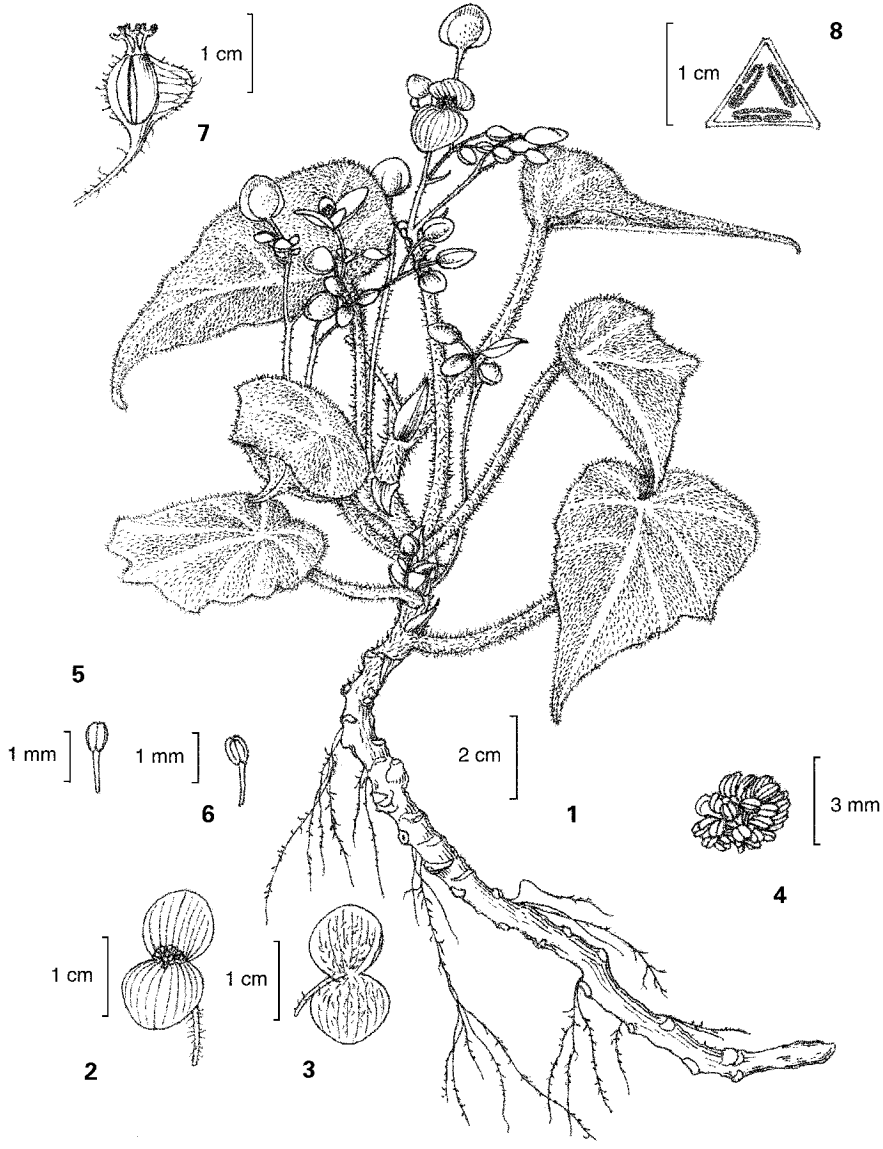

Fig. 1 *Begonia asteropyrifolia* Y. M. Shui et W. H. Chen 1. plant; 2. face view of male flower; 3. dorsal view of male flower; 4. androecium; 5. dorsal view of anther; 6. ventral view of anther; 7. lateral view of fruit; 8. medial transverse section of fruit. 1–6 by Y. M. Shui et W. H. Chen B2005-170; 7–8 by Y. M. Shui et W. H. Chen B2004-165. (Drawn by WU Xi-Lin)

Herb perennial, 10–20 cm tall, without erect stems. Rhizomes 3–6 cm long, ca. 1 cm diam., densely covered with strigae 2–4 mm long, internodes 0.7–1.1 cm long, nodus with few fibrous roots. Stipules mostly caducous, reflexed, triangular, 1–1.2 cm long, 3–4 mm wide, glabrous, apex acuminate. Leaves basal; blades thickly chartaceous, convex-concave, ovate, 6.5–8.5 cm long, 4–5 cm wide, 2- or 3-angular, apex acuminate, base peltate, margin serrulate and ciliate; ventral surface densely covered with tuberculate-based hairs 1.0–1.2 mm long; dorsal surface densely with ferrugineo-crip hairs ca. 2 mm long along nerves and venula; petioles 3–5 cm long, with dense strigae 3–4.5 mm long. Inflorescences dichasial, cymose-liked, 9–12 cm long, 3–6 cm wide, arising from the axils of leaves of rhizome apex, usually with 7–13 flowers; peduncles 5–6 cm long, densely covered with strigae 3–4 mm long; bracts lanceolate, glabrous, 7–9 mm long, 2–3.5 mm wide, apex acute. ♂ flowers: pedicles 1.1–1.3 cm long, densely covered with strigae ca. 1.5 mm long, bracteoles ovate, 4–5 mm long, 2–3 mm wide, outside with sparse cilia and strigae ca. 1 mm long; tepals 2 or 4, outer 2 pink, subrotundate, 0.8–0.9 cm diam., apex rotundate, outside with sparse strigae 0.8–1 mm long, inner 2 pinkish or white, oblong, 0.9–1 cm long, ca. 0.4 cm wide, glabrous; stamens numerous, filaments connate up to 0.5 mm, 0.9–1 mm long; anthers yellow, obovate, 0.5–0.6 mm long, 0.3–0.4 mm wide, apex emarginate, rimae of anthers erect. ♀ flowers unknown. Capsules broadly ovoid, 0.8–0.9 cm long, 1.0–1.2 cm wide, densely covered with strigae 1–1.2 mm long, unilocular; parietal placenta with 3 bilobate placentas from 3 walls of whole ovary; styles 3, 1–1.2 mm long, persistent, slightly connate at the base, with lycotropal stigmas; wings 3, unequal, triangular, strigous, minor 2 ca. 1 mm long, major 3–4 mm long, apex rotundate, the superior margin descending, the inferior margin ascending. Flowering from Feb to Jun.

China. **Guangxi**: **Donglan (东兰)**, at the foot of limestone hill, alt. 340 m, 2004-02-10, in fr., Y. M. Shui et W. H. Chen B2004-165 (holotype, KUN; isotype, PE); ibid., cultivated in the Kunming Botanical Garden, 2005-06, in male fl., Y. M. Shui et W. H. Chen B2005-170 (KUN).

Begonia auritistipula Y. M. Shui et W. H. Chen, sp. nov. Fig. 2

Haec species *B. obliquefoliae* S. H. Huang et Y. M. Shui similis, sed internodiis rhizomatis 3–5 cm longis (in illa 0.2–1 cm long), stipulis base oblique auritis (in illa base truncatis) bracteis apice rotundatis (in illa apice acutis) ala majore ovariorum late oblonga apice truncata (in illa triangulata apice acuta) differt.

Herb, 30–50 cm long, vine-liked, with a long climbing stems. Rhizomes 30–50 cm long, 3–5 mm diam., sparsely covered with strigae 2–3 mm long, internodes 3–5 cm long, nodus with few fibrous roots. Stipules mostly persistent, broadly ovate, respectively 9–11 mm long and wide, subglabrous, margin entire, apex ca. 0.5 mm long, base obliquely auritate. Leaves basal; blades slightly chartaceous, convex- concave, ovate, 10–18 cm long, 4–7 cm wide, apex acuminate, base quite oblique, margin serrulate and with cilia 1–1.5 cm long; ventral surface densely covered with setae 1–1.5 mm long; dorsal surface densely with strigae 2–3 mm long along the nerves; petioles 9–12 cm long, with sparse strigae 2–3.5 mm long. Inflorescences dichasial, cymose-liked, 9–14 cm long, 6–8 cm wide, arising from axils of leaves of rhizome apex, usually with 8–12 flowers; peduncles 5–9 cm long, glabrous; bracts oblong or broadly obovate, 1.2–1.4 cm long, 0.9–1.1 cm wide, glabrous, apex rotundate, margin ciliate. ♂ flowers: pedicles ca. 1.5 cm long, glabrous; bracteoles oblong, 0.8–1 cm long, 0.5–0.6 cm wide, margin ciliate; tepals 4, outer 2 pink, subrotundate, 1–1.2 cm diam., with red nerves, outside with sparse strigae ca. 1 mm long, inside glabrous, inner 2 white or pinkish, elliptic, 9–10 mm long, 3–3.5 mm wide, glabrous; stamens numerous, filaments free, 0.8–1 mm long, anthers yellow, obovate, ca. 1.3 mm long, ca. 0.7 mm wide, apex emarginate, rimae of anthers oblique. ♀ flowers: tepals 3, outer 2, rotundate, 0.8–1 cm diam., with pink nerves, outside with sparse strigae ca. 2 mm long, inside glabrous; ovaries coniform, 5–6 mm long, 4–4.5 mm wide, sparsely covered with strigae ca. 1.5 mm long, unilocular; parietal placenta with 3 bilobate placentas from 3 walls of whole ovary;

styles 3, 1.8–2.3 mm long, free, stigmas lycotropial; wings 3, unequal, minor 2, 1–1.5 mm long, major broadly oblong, 2–6 mm long, apex truncate, the superior and inferior margins descending. Mature capsules unknown. Flowering from May to Nov (in green house).

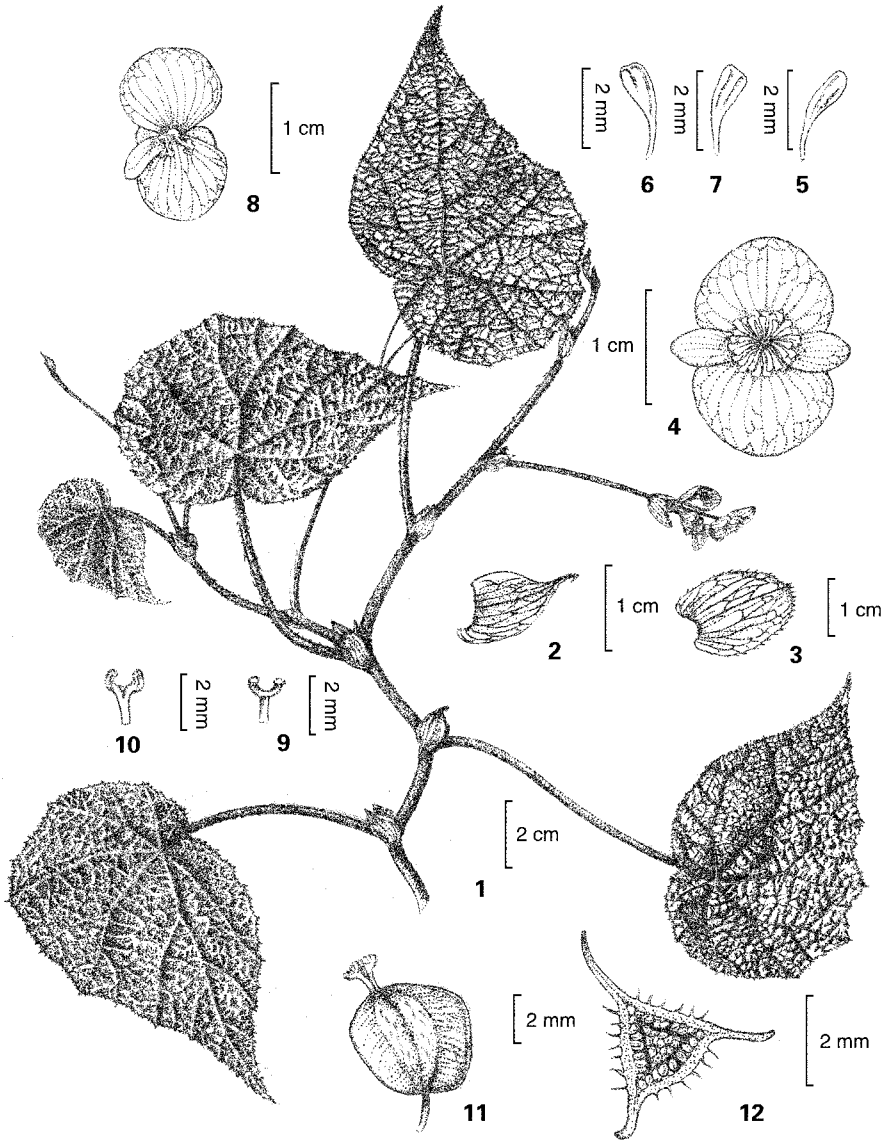

Fig. 2 *Begonia auritistipula* Y. M. Shui et W. H. Chen 1. plant; 2. stipule; 3. bract; 4. male flower; 5. lateral view of anther; 6. dorsal view of anther; 7. ventral view of anther; 8. female flower; 9. dorsal view of styles; 10. ventral view of styles; 11. lateral view of fruit; 12. medial transverse section of ovary. All by Chen and Ni 7886. (Drawn by ZHANG Ke)

China. **Guangxi**: without detailed locality, cultivated in Guangxi Botanical Garden of Medicinal Plant, 1979-06-04, flowers pink, Chen et Ni 7886 (holotype, GXMG); without detailed locality, cultivated in Kunming Botanical Garden of CAS, 2005-05-31, Y. M. Shui et W. H. Chen B2005-171 (KUN, PE).

The species was firstly cultivated at Guangxi Botanical Garden of Medicinal Plant, and it was said that the detailed

locality of the collection was unknown. Now, although the living plants of the species are all dead there, it is fortunate that they survive in Kunming Botanical Garden of CAS.

Begonia austroguangxiensis Y. M. Shui et W. H. Chen, sp. nov. Fig. 3

Haec species *B. zhengyianae* Y. M. Shui similis, sed foliis subtus dense furfuraceis et ad nervos nervulosque tomentosis (in illa subtus tantum ad nervos nervolosusque sparsim strigosis), capsulis maturis late ovatis 8–9 mm longis (in illa auguste ellipsoideis circ. 5 mm longis), alis capsularum inaequalibus (nec aequalis) placentis 3-lobatis in quoque loculos (nec 2-lobatis) differt.

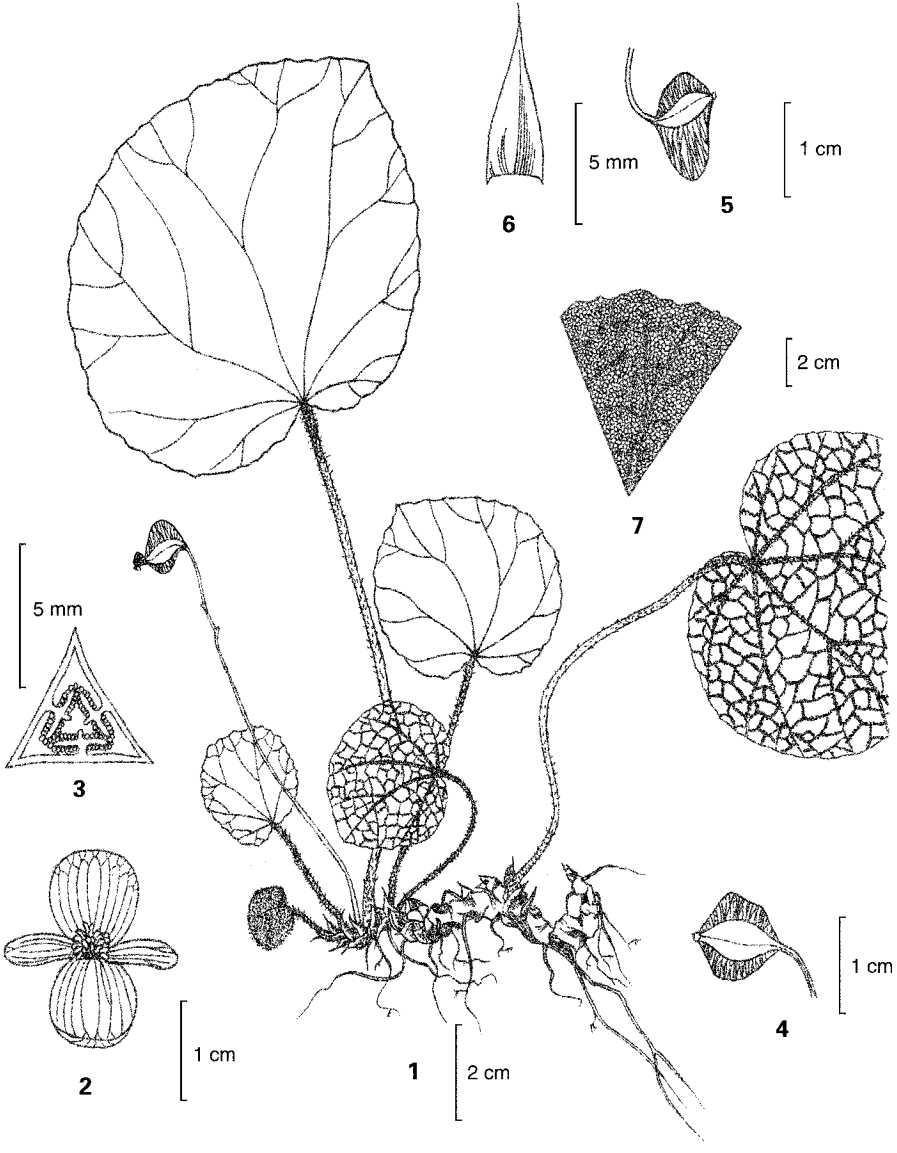

Fig. 3 *Begonia austroguangxiensis* Y. M. Shui et W. H. Chen 1. plant; 2. male flower; 3. medial transverse section of ovary; 4. face view of fruit; 5. lateral view of fruit; 6. stipule; 7. back part of leaf. 1, 3–7 by Y. M. Shui *et al*. B2005–046; 2 by S. Q. Chen 13061. (Drawn by ZHANG Rong-Mei)

Herb perennial, 10–15 cm tall without erect stems. Rhizomes 4–7 cm long, 3–4 mm diam., with internodes 2–3 mm long, strigae 2–3 mm long and many fibrous roots. Stipules most persistent, triangular, 5–6 mm long, 2–3 mm wide, with a tip 1–1.5 mm long at the every apex, entire on the margins, dorsal surface pilose. Leaves basal; blades broadly ovate or rotundate, 5–6 cm long, 6–7 cm wide, apex rotundate, base quite oblique, margin serrulate and with cilia 1–1.5 mm long; ventral surface flat and sparsely covered with setae ca. 1 mm long; dorsal surface densely covered with hairs ca. 0.5 mm long along the nerves and furfurescence on the other parts; petioles 6–10 cm long, densely covered with strigae 1–1.5 mm long. Inflorescences dichiasial, cymose-liked, 4–5 cm long, 2–3 cm wide, glabrous, arising from the axils of leaves of rhizome apex, with 5–8 flowers; peduncles 3–3.5 cm long; bracts triangular, 4–5 mm long, 3–3.5 mm wide, apex ca. 1.5 mm long, margin entire. ♂ flowers: tepals 4, glabrous, outer 2 pinkish, subrotundate, 8–10 mm diam., inner 2 white, obovate, 8–9 mm long, 3–4 mm wide; stamens numerous, filaments free, 1.2–1.5 mm long, anthers yellow, obovate, ca. 1.3 mm long, apex obtuse, rimae of anthers slightly oblique. ♀ flowers: one outer tepal pinkish or white, rotundate, 6–7 mm diam., the others unknown; ovaries unilocular; parietal placenta with three 3-lobate placentae from 3 ventral sature of ovary. Mature capsules nodding, broadly ovate, 8–9 mm long, 10–12 mm wide, glabrous; persistent styles 3, free, 2–2.5 mm long, stigmae bilobate; wings 3, unequal, minor 2, luniform, 1–1.5 mm long, major semi-rotundate or oblong, 3–6 mm long, apex truncate or rotundate, the superior margin descending, the inferior margin horizontal. Flowering in Jul.

China. Guangxi: Longzhou (龙州) (Longjin formerly), Gaoshan (**高山**), Jiangshi (**江石**), alt. 320~500 m, 1957-07-10, S. Q. Chen 13061 (IBSC); ibid., Jinlong (**金龙**), alt. 250 m, 2003-09-15, Y. M. Shui, W. H. Chen B2003-041 (KUN); ibid., on the shady slope of limestone hills, alt. 400 m, 2005-05-11, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-036 (KUN); ibid., in the open forest of limestone hill, alt. 330 m, 2005-05-11, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-046 (holotype, KUN; isotype, PE).

Begonia bonii Gagnep. var. ***remotisetulosa*** Y. M. Shui et W. H. Chen, var. nov.

Haec varietas var. *bonii* similis, sed internodiis rhizomatis 0.5–1 cm long (nec 0.1–0.2 cm long) foliis supra sparsim setulosis (nec dense setulosis) differt.

China. Guangxi: Debao (德保), nearby county, on rocks in the cave, 2004-02-06, in dry fruits, Y. M. Shui et W. H. Chen B2004-091 (holotype, KUN; isotype, PE); ibid., 2005-05-21, in dry fruits, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-109 (KUN); **Jingxi (靖西)**, Biaolin (**表林**), on rocks of limestone hill, 1935-08-25, in flowers, S. P. Ko 55623 (IBSC).

Begonia crystallina Y. M. Shui et W. H. Chen, sp. nov. Fig. 4

Habitu *B. bonii* Gagnep. similis, sed foliis supra planis (nec muricatis vel rugosis) laxe breviter setosis (in illa dense breviter setosis), inferne dense dictyoneuris (illa sparsim dictyoneuris), alis capsularum subaequalibus (in illa inaequalibus) ala majore lunata 2–3 mm longa (nec semirotundata 4–6 mm longa) differt.

Herb perennial, 16–34 cm tall, without erect stems. Rhizomes creeping, 6–12 cm long, 0.8–1 cm diam., slightly woody, densely covered with strigae 2–3 mm long, internodes 0.2–0.3 mm long, nodus with many fibrous roots. Stipules seldom persistent, reflexed, triangular, 5–7 mm long, 3–4 mm wide, glabrous, apex acuminate. Leaves basal; blades thickly chartaceous, broadly ovate, 12–13 cm long, 18–23 cm wide, base very oblique cordate, apex obtuse, margin serrulate and with cilia ca. 3 mm long; ventral surface flat, laxly covered with slightly tuberculate-based setae 0.4–0.5 mm long; dorsal surface densely covered with strigae 0.2–0.3 mm long along nerves and 1–1.5 mm along costa; petioles 17–25 cm long, with dense strigae 2–3 mm long. Inflorescences dichasial, cymose-

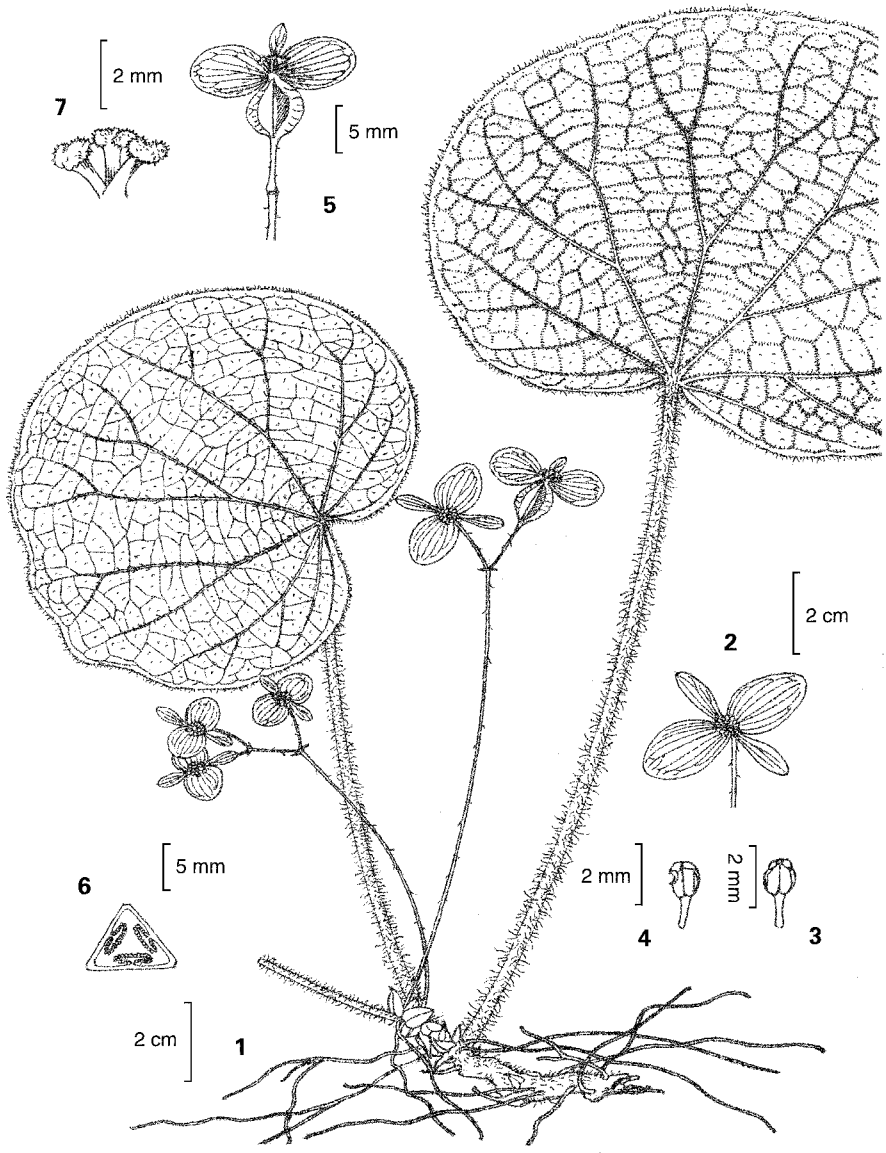

Fig. 4　*Begonia crystallina* Y. M. Shui et W. H. Chen　1. plant；2. male flower；3. dorsal view of anther；4. ventral view of anther；5. female flower and young fruit；6. medial transverse section of ovary；7. style and stigma. All by Y. M. Shui and D. G. Wang 21809.（Drawn by WU Xi-Lin）

liked，15–20 cm long，3–6 cm wide，arising from the axils of leaves of rhizome apex，usually with 10–15 flowers；peduncles 10–18 cm long，with lax strigae 0.5–1.0 mm long；bracts ovate，2–3 mm long，1.5–2 mm wide，subglabrous，apex acuminate，margin with cilia ca. 1 mm long. ♂ flowers：pedicles 1.0–1.1 cm long，subglabrous；bracteoles ovate，ca. 1 mm long，ca. 0.5 mm wide，outside with cilia and strigae ca. 0.5 mm long；tepals 4，glabrous，outer 2 pink，rotundate，0.9–1 cm diam.，inner 2 pinkish，narrowly oblong，1–1.1 cm long，ca. 0.2 cm wide；stamens numerous，filaments free，1.1–1.2 mm long；anthers yellow，oblong，0.8–0.9 mm long，0.6–0.7 mm wide，apex emarginate or rotundate，rimae of anthers slightly oblique. ♀ flowers：tepals 3，glabrous，outer 2

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subglabrous，apex acuminate. ♂ flowers：pedicles 0.5–0.6 cm long，laxly covered with glandular hairs 1–1.5 mm long，bracteoles oblong，2–3 mm long，1–1.5 mm wide，margin with cilia 1–2 mm long；tepals 4，outer 2 green，rotundate，4–5 mm diam.，reflected，outside laxly covered with glandular hairs 0.5–1 mm long，inside glabrous，inner 2 greenish，oblong，3–4 mm long，1.5–2.0 mm wide，glabrous；stamens numerous，filaments connate at the base，0.5–0.6 mm long；anthers yellow，obovate，0.3–0.4 mm long，0.2–0.3 mm wide，apex emarginate，rimae of anthers oblique. ♀ flowers：tepals 3，outer 2 green，rotundate，4–4.5 mm diam.，outside with lax glandular hairs 1–1.5 mm long，inside glabrous，inner greenish，lanceolate，4–4.5 mm long，1.7–2 mm wide，glabrous；ovaries coniform，8–9 mm long，3-winged，laxly covered with glandular strigae 1.5–2.0 mm long，unilocular；parietal placenta with 3 bilobate placentae at the superior and middle parts and 3 integer ones arising at axis of ovary bottom；styles 3，ca. 1.3 mm long，free，stigmas lycotropal and spiraled. Mature Capsules slightly nodding，obovate（excluding wings），0.8–1.2 cm long，0.3–0.5 cm diam.，with 3 persistent tepals and styles；wings 3，unequal，laxly covered with glandular hairs，minor 2 narrowly oblique-triangular，2–3 mm long，major semirotundate or oblong，5–7 mm long，apex rotundate or trunate，the superior margin descending，the inferior margin horizontal，descending and seldom ascending. Flowering from May to Oct；fruiting from July.

China. **Guangxi**：**Longzhou**（**龙州**），Nonggang National Natural Reserve（**弄岗自然保护区**），under the limestone forest，alt. 200 m，2003–09–12，flowers green，Y. M. Shui et W. H. Chen B2003–001（KUN，PE）；ibid.，under the limestone forest，alt. 250 m，2005–05–12，Y. M. Shui，W. H. Chen and M. D. Zhang B2005–051（holotype，KUN；isotypes，IBSC，KUN，PE）.

Begonia huangii Y. M. Shui et W. H. Chen，sp. nov. Fig. 7

Haec species *B. morsei* Irmsch. similis，sed foliis supra sparsim longe strigosis（in illa dense tuberculatis setulosis），capsulis obovoideis（nec ovoideis），ala majore capsularum anguste luniforme（in illa triangulata vel late oblonga）differt.

Herb perennial，10–20 cm tall，without erect stems. Rhizomes 6–10 cm long，0.4–0.5 cm diam. Stipules mostly persistent，ovate，5–8 mm long，4–6 mm wide，apex with a tip 2–4 mm long，dorsal surface with sparse strigae 2–3.5 mm long. Leaves basal；blades broadly ovate，12–14 cm long，9–10 cm wide，margin serrate and ciliate，base deeply and obliquely cordate；adaxial surface sparsely covered with long strigae 1–1.8 mm long；abaxial surface with dense strigae 1–2 mm long；nerves 6–7，palmate，dichotomous，exterior 3，interior 1–2；petioles 9–15 cm long，with crisp hairs 3–5 mm long. Inflorescences cymose-liked，5–10 cm long，2–5 cm wide，glabrous，arising from axils of leaves of rhizome apex，with 6–18 flowers；peduncles 6–8 cm long，sparsely stigose；bracts caducous；bracteoles absent. ♂ flowers：tepals 4 white or red，glabrous，outer 2 ovate，ca. 1 cm long，ca. 0.8 cm wide，inter 2 obovato-oblong，ca. 1.2 cm long，ca. 0.6 cm wide；stamens numerous，filaments free，ca. 1.2 mm long，anthers yellow，elliptic，ca. 1.0 mm long，ca. 0.4 mm wide，with longitudinal lateral slits，connective not extended. ♀ flowers：tepals 3，red，glabrous，outer 2 orbicular，6–7 mm diam.，inter elliptic，ca. 4 mm long，ca. 1.5 mm wide；ovaries ovate，unilocular；parietal placenta with 3 bilobate placentae，ovules present on both sides of placentas；styles 3，free，1.5–2 mm long，caducous in fruit，stigmas U-shaped. Mature capsules nodding，obovoid，1.0–1.1 cm long，ca. 0.8 cm wide，dehiscent near the back of the locules and the septa；wings 3，subequal，luniform，2 minor 1–1.5 mm long，major ca. 3 mm long，the superior margin slightly descending，the inferne margin obviously ascending. Flowering from Aug to Nov；fruiting from Oct.

China. **Yunnan**：**Gejiu**（**个旧**），Manhao（**曼耗**），on rocks of limestone forests，alt. 1 100 m，1995–08–04，in flowers，S. H. Huang *et al*. 95180（YUKU）；ibid.，on rocks in limestone forest，alt. 700 m，2000–11–16，herb 0.2 m，flowers red，Y. M. Shui，C. X. Pu and Z. L. Nie 14268（KUN），14288（holotype，KUN）；ibid.，in limestone forest，alt. 1 000 m，2002–09–05，flowers red，Y. M. Shui et Q. J. Liu 15847

(KUN)；ibid.，in limestone forest，alt. 1 000 m，2002－09－06，flowers red，Y. M. Shui et Q. J. Liu 15909 (KUN)；ibid.，on rocks nearby the river bank，alt. 800 m，2004－05－01，Y. M. Shui，W. H. Chen et M. D. Zhang 40782 (KUN)；ibid.，on rocks in limestone forest，alt. 350 m，2005－05－03，Y. M. Shui，W. H. Chen，M. D. Zhang，Z. D. Wei and G. F. Liu 43978 (KUN)；**Pingbian (屏边)**，Xinxian **(新现)**，on rocks in the dense forest，alt. 800 m，2002－09－05，flowers red，Y. M. Shui et Q. J. Liu 15860 (IBSC，KUN，PE).

The epithet of the new species comes from“ Huang”，in honor of Prof. Huang Su-hua in Yunnan University for her contribution to the study on Begoniaceae of China.

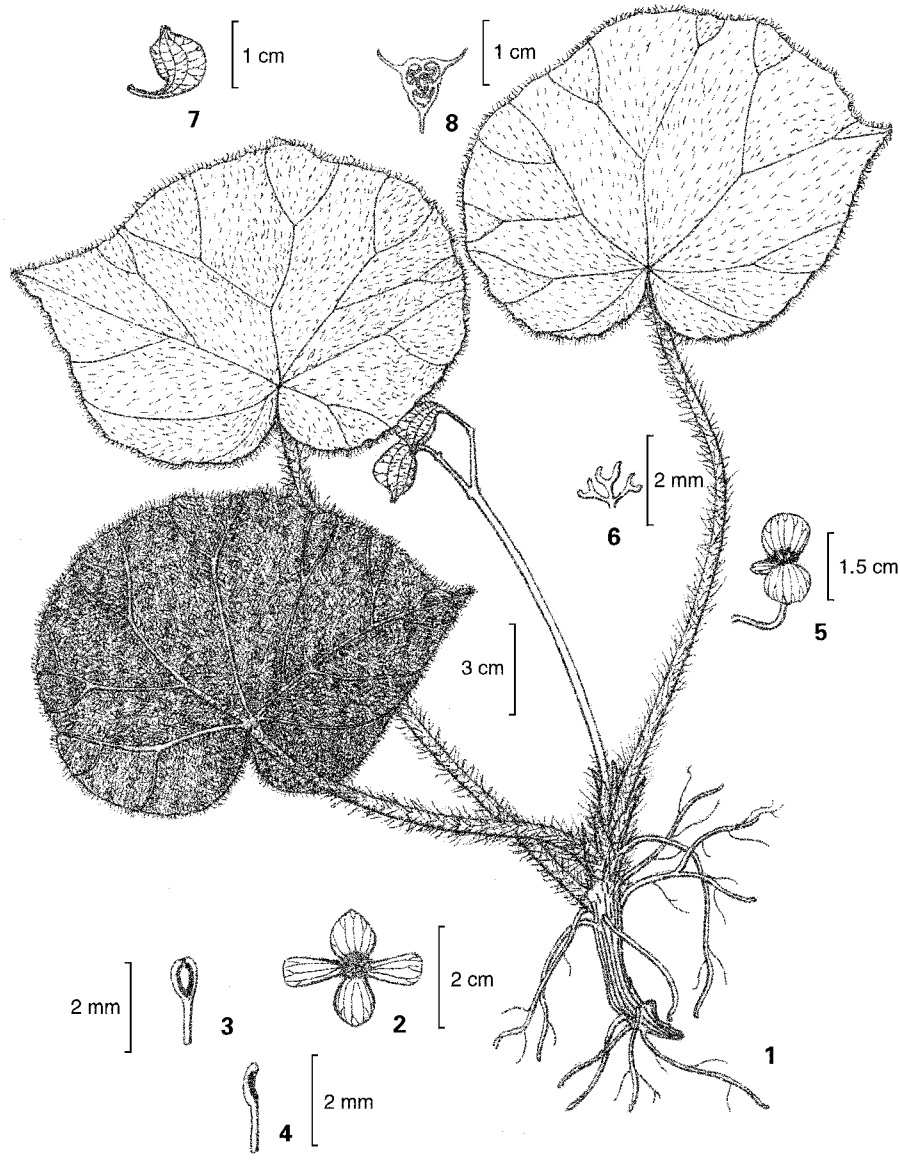

Fig. 7 *Begonia huangii* Y. M. Shui et W. H. Chen 1. plant；2. male flower；3. ventral view of anther；4. lateral view of anther；5. female flower；6. style and stigma；7. fruit；8. medial transverse section of ovary. All by Y. M. Shui *et al*. 14288. (Drawn by WANG Ling)

Begonia longistyla Y. M. Shui et W. H. Chen, sp. nov. Fig. 8

Habitu *B. morsei* Irmsch. similis, sed pedicellis 7–8 mm longis (nec circ. 2 cm longis), tepalis viridibus 0.4–0.5 cm longis (nec roseis 0.8–1.1 cm longis), filamentis 1.5–2.0 mm longis e basi ad medium connatis (in illa 0.7–1.25 mm longis basi breviter connatis), stylis e basi ad medium connatis (nec omnino liberis), capsulis apice rostratis (nec truncatis) differt.

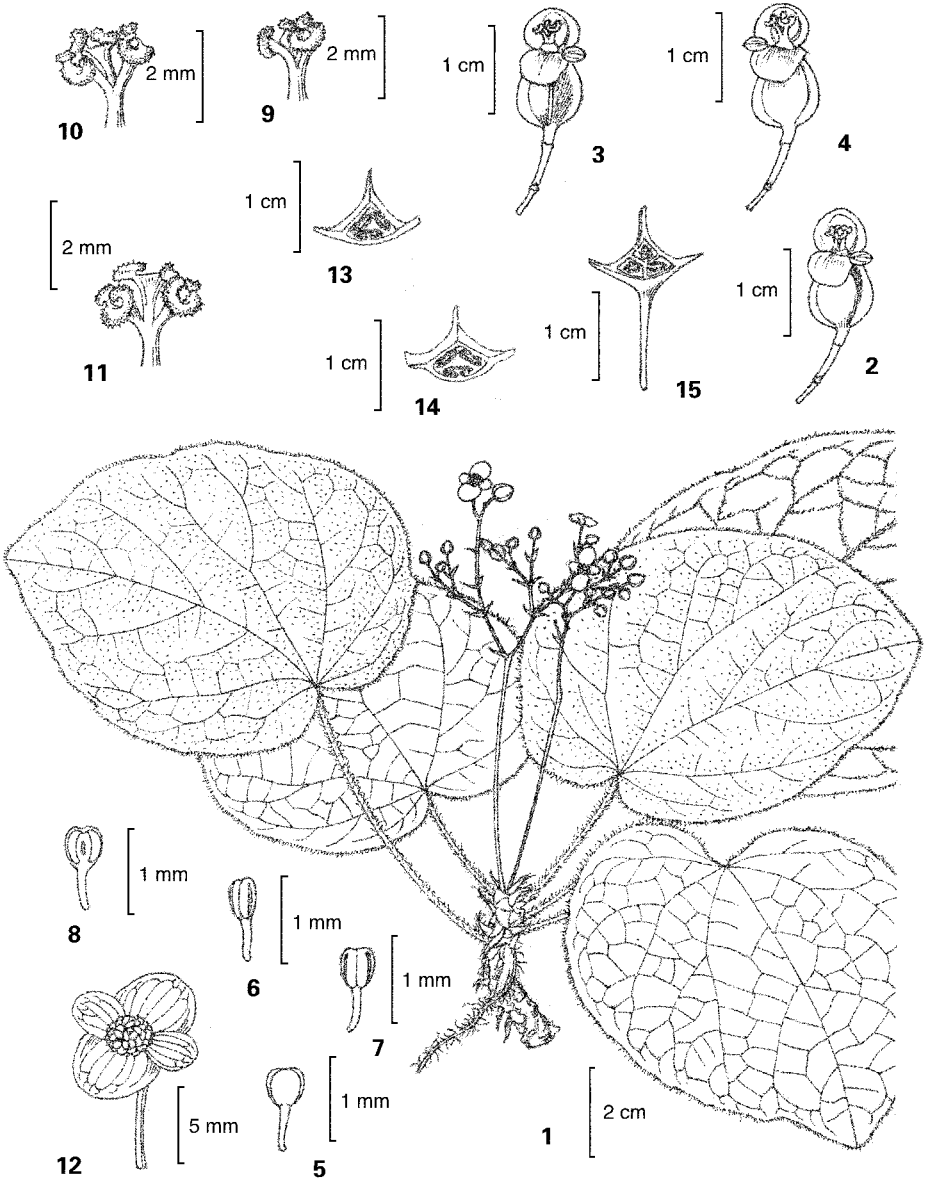

Fig. 8 *Begonia longistyla* Y. M. Shui et W. H. Chen 1. plant; 2. lateral view of female flower; 3. dorsal view of female flower; 4. face view of female flower; 5. dorsal view of anther; 6. lateral view of anther; 7. ventral view of anther; 8. longitudinal section of anther; 9. lateral view of style; 10. ventral view of style; 11. dorsal view of style; 12. face view of male flower; 13. superior transverse section of ovary; 14. medial transverse section of ovary; 15. inferior transverse section of ovary. All by Y. M. Shui, W. H. Chen et M. D. Zhang 40778. (Drawn by WU Xi-Lin)

Herb perennial, 10–15 cm tall, without erect stems. Rhizomes 7–10 cm long, 2–4 mm diam., slightly woody, laxly covered with strigae ca. 1 mm long, internodes 3–4 mm long, nodus with many fibrous roots. Stipules generally persistent, reflexed, triangular, 5–6 mm long, 3–3.5 mm wide, dorsal surface with hairs ca. 1 mm long, apex with a tip ca. 0.5 mm long. Leaves basal; blades chartaceous, convex-concave, ovate, 6–10 cm long, 4–6 cm wide, apex rotundate or with an obtuse tip, base very obliquely cordate, margin serrulate and ciliate; ventral surface densely covered with tuberculate-based setae ca. 0.5 mm long; dorsal surface with dense hairs 0.2–0.3 mm long along nerves; petioles 3–5 cm long, densely covered with strigae 1.5–2 mm long. Inflorescences dichasial, cymose-liked, 5–11 cm long, 2–5 cm wide, arising from the axils of leaves of rhizome apex, with 20–40 flowers; peduncles 4–8 cm long, glabrous; bracts ovate, 2–3 mm long, 1–1.5 mm wide, apex with a tip ca. 1.5 mm long, dorsal surface sparsely covered with strigae ca. 2 mm long. ♂ flowers; pedicles 7–8 mm long, glabrous; bracteoles ovate, 2–3 mm long, 1–1.5 mm wide, apex obtuse, dorsal surface with lax cilia and strigae ca. 1 mm long; tepals 4, glabrous, outer 2 green, rotundate, 0.4–0.5 cm diam., inner 2 greenish, obovate, 0.45–0.5 cm long, 0.3–0.35 cm wide; stamens numerous, filaments 0.5–0.6 mm long, connate up to a half from base; anthers yellow, obovate, 0.3–0.4 mm long, 0.3–0.4 mm wide, apex emarginate, rimae of anthers erect. ♀ flowers: tepals 3, glabrous, outer 2 green, rotundate, 0.4–0.5 cm diam., inner greenish, obovate, 3–4 mm long, 1–1.5 mm wide; ovaries coniform, 7–8 mm long, 3–4 mm diam., glabrous, 3-winged, apex with beaks 1.5–2.0 mm long, unilocular; parietal placenta with 3 bilobate placentae at the upper and middle parts, and 3 integer placentae placed at axis of ovary bottom; styles 3, 1.5–2.0 mm long, connate up to a half from base, stigmas lycotropal. Mature capsules nodding, ovate, 6–7 mm high, 3–4 mm diam., with 3 persistent styles; wings 3, subequal, luniform, glabrous, 2 minor ca. 1 mm long, major ca. 1.5 mm long, apex rotundate or truncate, the superior margin slightly horizontal or descending, the inferior margin ascending. Flowering from Apr to Jun; fruiting from May.

China. **Yunnan**: **Gejiu (个旧)**, Manhao (**曼耗**), on rocks in valley dense forest, alt. 260 m, 1993–12–24, fruits dried, Y. M. Shui 4002 (KUN, PE, YUKU); ibid., on rocks in dense forest, alt. 300 m, 1994–04–26, in flowers, S. H. Huang et Y. M. Shui 94013 (KUN, PE); ibid., 2000–11–18, Y. M. Shui, C. X. Pu and Z. L. Nie 14469 (KUN); ibid., on rocks in the rainy forest, alt. 250 m, 2004–05–02, flowers green, fruits in young, Y. M. Shui, W. H. Chen et M. D. Zhang 40801 (KUN); **Hekou (河口)**, Lianhuatan (**莲花滩**), on rocks in tropical rainy forest along valley, alt. 250 m, 2004–05–01, flowers green with red base of tepals, fruits with red wings, Y. M. Shui, W. H. Chen et M. D. Zhang 40778 (holotype, KUN; isotypes, IBSC, PE); ibid., alt. 250 m, 2005–05–02, Y. M. Shui, W. H. Chen, M. D. Zhang, Z. D. Wei and G. F. Liu 43909 (KUN).

Begonia morsei Irmsch. var. ***myriotricha*** Y. M. Shui et W. H. Chen, var. nov.

A var. *morsei* differt foliis densissime setolusis subtus manifeste dictyoneuris tepalis exterioribus et capsulis dense rubro-strigosis.

China. **Guangxi**: **Debao (德保)**, nearby the county, under secondary forest of limestone hills, alt. 700 m, 2005–05–22, Y. M. Shui, W. H. Chen and M. D. Zhang B2005–150 (holotype, KUN; isotype, PE); ibid., to Batou (**巴头**), on roadside of limestone, 1967–05–24, flowers pink, Y. Wan and X. X. Chen 32248 (GXMI); ibid., without detailed locality, collector unknown 1056–1 (PE); **Jingxi (靖西)**, at Chuang Medicine Market in the county seat, 1994–06–13, fruits green, X. C. Huang et J. F. Wei 10966 (GXMI).

Begonia platycarpa Y. M. Shui et W. H. Chen, sp. nov. Fig. 9

Haec species *B. porteri* Lévl. et Vant. similis, sed exterioribus tepalis extus sparsim strigosis (in illa glabris) capsulis compressis (in illa haud compressis) alis capsularum 3 aequalibus lunatis 1.5–2.2 mm longis (in illa alis capsularum inaequalibus ala majore semirotundata 5–12 mm longa) valid differt.

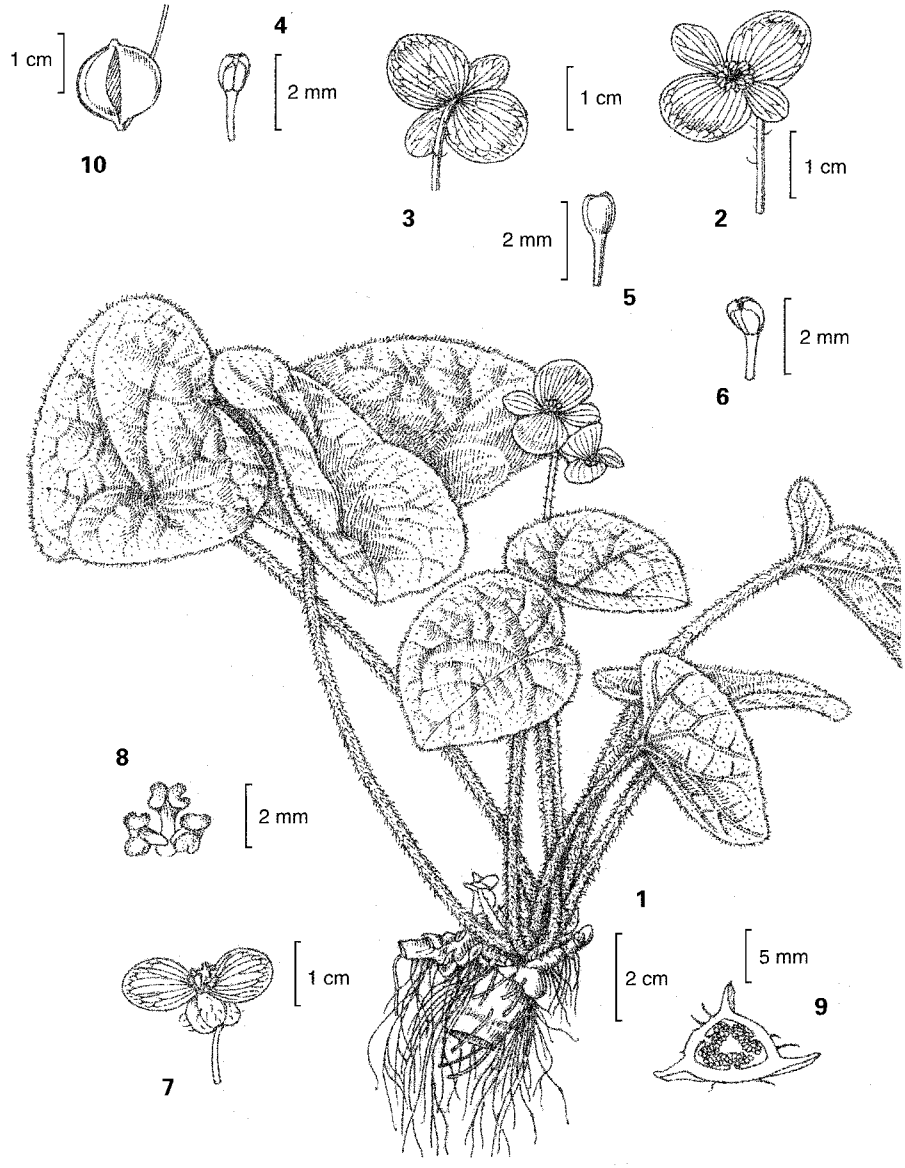

Fig. 9 *Begonia platycarpa* Y. M. Shui et W. H. Chen 1. plant; 2. face view of male flower; 3. dorsal view of male flower; 4. face view of anther; 5. dorsal view of anther; 6. lateral view of anther; 7. face view of female flower; 8. style and stigma; 9. medial transverse section of ovary; 10. face view of dry fruit. All by Y. M. Shui, W. H. Chen and M. D. Zhang B2005-029. (Drawn by WU Xi-Lin)

Herb perennial, 10–20 cm high, without erect stem. Rhizome 4–10 cm long, 2–3 mm diam., with lax strigae 2–3 mm long, internodes 5–9 mm long, nodus with many fibrous roots. Stipules mostly persistent, reflexed, triangu-

lar, 6–8 mm long, 3–4 mm wide, dorsal surface densely covered with strigae 2–3 mm long, apex with a tip ca. 0.5 mm long. Leaves basal; blades ovate, chartaceous, 6–8 cm long, 4–5.5 cm wide, apex rotundate and with an obtuse tip, base obliquely cordate, margin serrulate and with cilia 3–4 mm long; ventral surface dense covered with hairs ca. 3 mm long; dorsal surface sparsely with strigae 3–4 mm long along nerves and glabrous on the other parts; petioles 5–10 cm long, densely covered with strigae 3–5 mm long. Inflorescences dichasial, cymose-liked, 8–12 cm long, 6–7 cm wide, arising from the axils of leaves of rhizome apex, usually with 12–15 flowers; peduncles 5–8 cm long, slightly covered with strigae ca. 3 mm long; bracts obovate or ovate, 4–7 mm long, 2–3.5 mm wide, apex rotundate or acute, margin ciliate, dorsal surface sparsely covered with strigae ca. 1 mm long. ♂ flowers: tepals 4, outer 2 pink, subrotundate, 1.0–1.5 cm diam., apex with red stripe, inside glabrous, outside sparsely covered with strigae ca. 1.5 mm long, inner 2 white or pinkish, obovate, 1.2–1.6 cm long, 4–6 mm wide, glabrous; stamens numerous, filaments free, 1–1.1 mm long, anthers yellow, obovate, 1.2–1.3 mm long, 0.5–0.7 mm wide, apex slight emarginate; rimae of anthers erect. ♀ flowers: tepals 3, rarely 2 or 4, pink, outer 2 rotundate, 1.0–1.3 cm diam., apex with red stripe, inside glabrous, outside sparsely covered with strigae ca. 2 mm long, inner pinkish, obovate, 0.8–1.1 cm long, 3–5 mm wide, glabrous; ovaries coniform, 3-winged, sparsely covered with strigae ca. 2 mm long, unlocular; parietal placenta with 3 bilobate placentae at the middle part of ovary; styles 3, ca. 2 mm long, base slightly connate, stigmas lycotropal. Mature capsules nodding, rotundate, 7–8 mm diam., compressed, glabrescent, with 3 persistent styles; wings 3, equal, luniform, 1.5–2.2 mm long, the superior margin descending, the inferior margin ascending. Flowering from Mar to Jun.

China. **Yunnan**: **Guangnan (广南)**, alt. 1 000 m, 2004-02-20, Y. M. Shui et W. H. Chen B2004-210 (KUN); ibid., at the foot of limestone hill, alt. 900 m, 2005-05-09, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-029 (holotype, KUN; isotypes, IBSC, KUN, PE); ibid., 2005-05-08, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-016 (KUN).

Begonia rhynchocarpa Y. M. Shui et W. H. Chen, sp. nov. Fig. 10

Haec species *B. bonii* Gagnep. similis, sed internodiis rhizomatis 6–12 mm longis (nec 1–2 mm longis) capsulis anguste trigonis circ. 12 mm longis 2–3 mm latis (in illa capsulis late ovoideis 0.8–1.0 cm longis 0.8–1.2 cm latis) alis capsularum 3 aequalibus (nec unaequalis) 1–1.5 mm longis (in illa ala majore 3–5 mm longa) differt.

Herb perennial, 10–15 cm high, without an obvious upright stem. Rhizome creeping, 1–2 mm diam.; internodes 0.6–1.2 cm long. Stipules lanceolate, 3.5–4.0 mm long, 1.1–1.3 mm wide, margin entire, apex caudate. Leaves basal; blades numerous, ovate, 6–7 cm long, 4.5–5 cm wide, margin remotely serrate, base slightly and obliquely cordate; ventral surface sparsely covered with short tuberculari-based setae; dorsal surface densely with curled hairs and arranged as spider web of nervation; petioles 5.5–10 cm long, densely covered with crisp hairs 2–3 mm long. Inflorescences cymose-liked, 6–8 cm long, 3–3.5 cm wide, arising from the axils of leaves of rhizome apex, with 4–6 flowers; peduncles, 4.0–5.5 cm long; bracts and bracteoles absent. ♂ flowers: tepals 4, red, outer 2 ovate, ca. 1 cm long, 1.1–1.2 cm wide, inter 2 elliptic, ca. 1 cm long, 0.3–0.4 cm wide; stamens numerous, filaments free, 1–1.1 mm long, anthers yellow, obovate, ca. 1 mm long, 0.6–0.7 mm wide, apex slightly emarginate; rimae of anthers slightly erect. ♀ flowers: pedicles ca. 7 mm long; tepals 3, pinkish, glabrous, outer 2, broadly obovate, 9–10 mm long, 8–9 mm wide, inner elliptic, ca. 6 mm long, ca. 3 mm wide; ovaries narrowly trigonous, unilocular; parietal placenta with 3 2-branched placentae; styles 3, ca. 3 mm long; stigmas kidney-shaped, 0.8–0.9 mm long. Mature capsules nodding, narrowly trigonous, ca. 1.2 cm long, 0.2–0.3 cm wide, dehiscent near the back of the loculus and near the septa; wings 3, equal, 1–1.5 mm long. Flowering Jan to May.

China. **Yunnan**: **Hekou (河口)**, Nanxi (南溪), in the secondary forest on the rock-earthy hill, alt. 800

m，2000－11－21，herb 0.1 m，flowers red，fruits dry，Y. M. Shui *et al*. 14553（KUN）；ibid.，on surface of rocks in dense forest along the river，alt. 200 m，flowers pink，young fruits red，2002－03－28，Y. M. Shui *et al*. 20856（holotype，KUN）；ibid.，on cliffs in dense forest along the moist valley，alt. 690 m，2004－05－06，in flowers and fruits，Y. M. Shui，W. H. Chen et M. D. Zhang 40902（IBSC，KUN，PE）；ibid.，on rocks of the rock-earthy hills，alt. 150 m，2001－06－05，D. K. Tian 20312（KUN）；ibid.，2001－12－14，Y. L. Wang s.n.（KUN）.

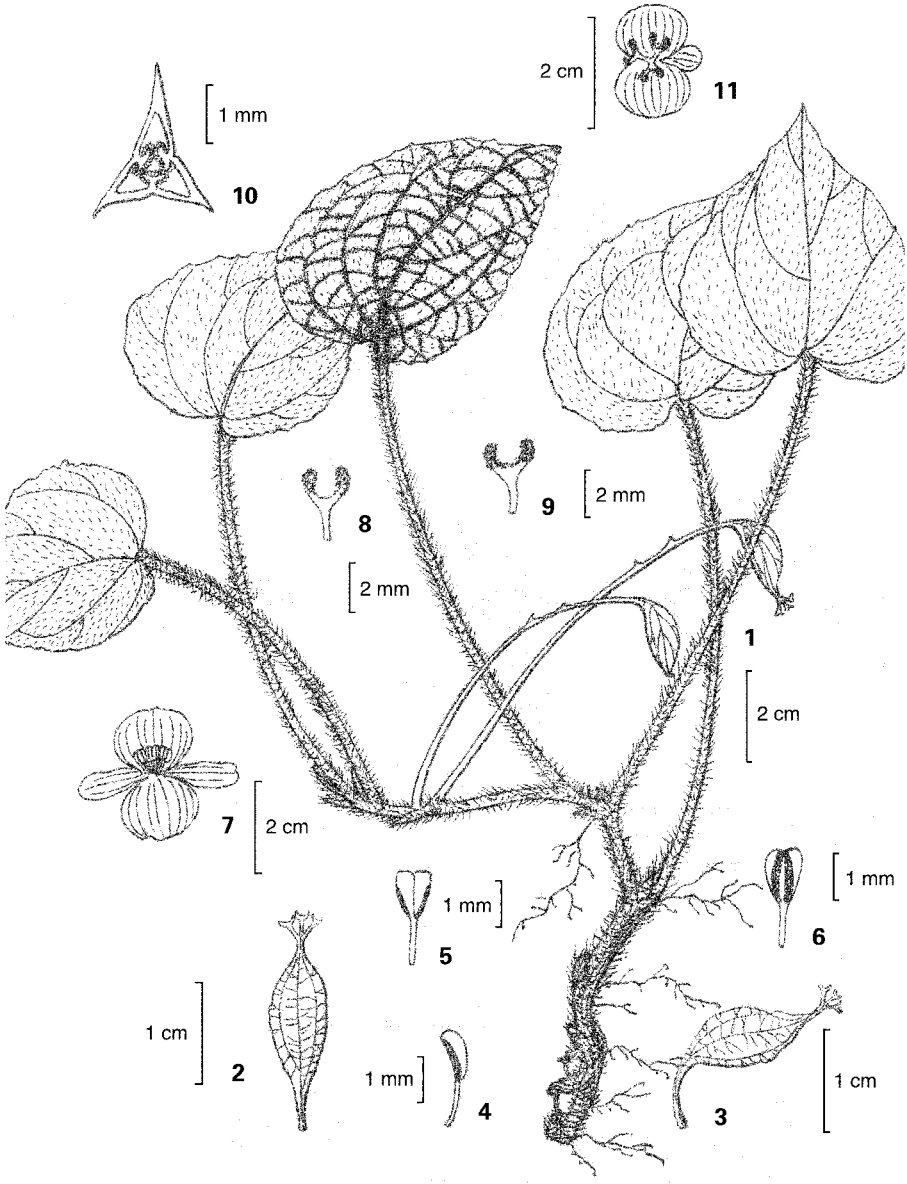

Fig. 10　*Begonia rhynchoarpa* Y. M. Shui et W. H. Chen　1. plant；2. face view of dry fruit；3. lateral view of dry fruit；4. lateral view of anther；5. dorsal view of anther；6. ventral view of anther；7. male flower；8. dorsal view of stigma；9. ventral view of stigma；10. medial transverse section of ovary；11. female flower. 1–4 by Y. M. Shui *et al*. 14553；4–11 by Y. M. Shui *et al*. 20856.（Drawn by WANG Ling）

Begonia umbraculifolia Y. Wan et B. N. Chang var. ***flocculosa*** Y. M. Shui et W. H. Chen, var. nov.

A var. *umbraculifoliae* similis, sed petiolis dense strigosis (in illa sparsim strigosis) foliis supra inter nervos nervulosque densissime breviter hispidis (in illa sparsim strigosis) subtus ad nervos nervulosque breviter dense rubro-strigosis (in illa sparsim strigosis) parce differt.

China. **Guangxi**: **Daxin** (**大新**), Encheng (**恩城**), Longyan (**龙眼村**), on shady rocks, alt. 500 m, 1978-04-07, in dry fruits, Z. M. He 2-410 (GXMI); ibid., in the forest of limestone hill, alt. 200 m, in dry fruits, 2005-05-19, Y. M. Shui, W. H. Chen and M. D. Zhang B2005-086 (holotype, KUN).

Begonia variegata Y. M. Shui et W. H. Chen, nom. nov.

—— *B. masoniana* Irmsch. var. *maculata* S. K. Chen, R. X. Zheng et D. Y. Xia in Acta Bot. Yunnan. **8** (2): 222. 1986, syn. nov.; —— *B. rex* auct non Putz., R. X. Zheng in Acta Bot. Yunnan. **7** (1): 125. 1986.

Vietnam. **Cao Bang**: Quang Hoa (**宣化**), Mt. Jinhuashan (**金华山**), introduced and cultivated in the Kunming Botanical Garden in Yunnan of China, 1985-08, R. X. Zheng 85-01 (holotype, KUN; isotype, KUN), but "1985-09-30, R. X. Zheng s. n." recorded in type specimen of KUN; without detailed locality, cultivated in the Kunming Botanical Garden of CAS, 1978-07, flowers greenish, fruits green, B. Y. Qiu 781405 (KUN), 781406 (KUN).

The species is similar to *B. masoniana* Irmsch. in their bulliform setae on ventral surface of leaves, and glandular hairs on exterior surface of tepals. The former is characterized by its dense setae on ventral surface of leaves, dense villi and tomentum on dorsal surface, purple-darked cyclic stripe near the margin of leaves, dense glandular strigae on the peduncles and pedicles. However, *B. masoniana* Irmsch. is by its sparse setae on ventral surface of leaves, sparse long strigae on dorsal surface, lack of the purple-darked cycled stripe near the margin of leaves, subglabrous peduncles and pedicles. So, the difference, especially in ventral surface of leaves, peduncles and pedicels, is so obvious that *B. masoniana* Irmsch. var. *maculata* S. K. Chen, R. X. Zheng et D. Y. Xia should be considered as another species. Because *Begonia maculata* has been occupied before, a new epithet will be chosen, viz. "*variegata*", meaning with various colorful stripes. It was said that the plants in Kunming Botanical Garden of CAS were introduced by Mr. Zhang Ao-luo from Mt. Jinhuashan of Quang Jyen (Quang Hoa), Cao Bang Prov. in Vietnam in 1961.

Begonia variifolia Y. M. Shui et W. H. Chen, sp. nov. Fig. 11

Habitu *B. morsei* Irmsch. similis, sed foliis basi ab cordatis ad peltatis (in illa haud peltatis) pedunculis pedicellisque pilosis (nec glabris), exterioribus tepalis extus pilosis (nec glabris), capsulis dense pilosis (nec glabris), ala majore capsularum late oblonga 2-3 mm longa (in illa anguste oblonga 5-12 mm longa) differt.

Herb perennial, 10-20 cm tall, without erect stems. Rhizomes 3-8 cm long, 2-3 mm diam., slightly woody, densely covered with strigae ca. 2 mm long, internodes 0.2-0.3 mm long, nudus with many fibrous roots. Stipules persistent, reflexed, ovate, 5-6 mm long, 3-4 mm wide, dorsal surface glabrous or slightly pilosous, apex with a tip ca. 0.5 mm long. Leaves basal; blades chartaceous, convex-concave, ovate, 6-10 cm long, 4-6 cm wide, apex acute and with an obtuse tip, base oblique from cordate to peltate, margin serrulate and ciliate; ventral surface densely covered with tuberculate-based setae 0.5-0.7 mm long; dorsal surface laxly with hairs 0.2-0.3 mm long along nerves; petioles 3-5 cm long, densely covered with strigae 1-1.5 mm long. Inflorescences dichasial, cymose-liked, 10-24 cm long, 3-6 cm wide, arising from the axils of leaves of rhizome apex, usually with 6-13 flowers; peduncles 8-21 cm long, densely covered with strigae ca. 2 mm long; bracts oblong, 7-9 mm long, 4-5 mm wide, apex rotundate,

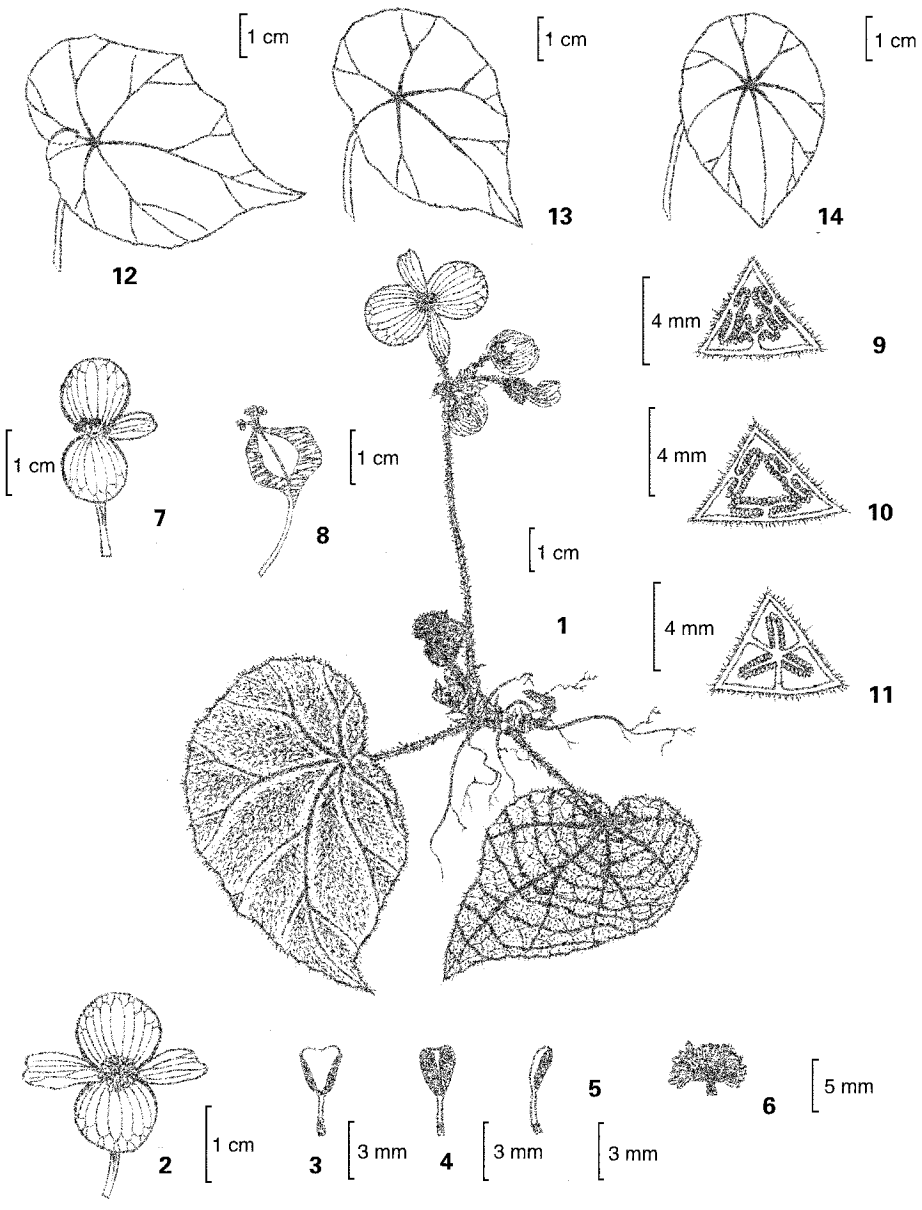

Fig. 11　*Begonia variifolia* Y. M. Shui et W. H. Chen　1. plant; 2. male flower; 3. dorsal view of anther; 4. ventral view of anther; 5. lateral view of anther; 6. lateral view of androecium; 7. female flower; 8. fruit (dry); 9–11. uppre, medial and inferior transverse section of ovary; 12–14. shape of leaf gradually changed to peltate. All by Y. M. Shui et W. H. Chen B2004–202. (Drawn by ZHANG Rong-Mei).

9-nerved, dorsal surface laxly covered with strigae ca. 2 mm long. ♀ flowers: pedicles 1.5–2.5 cm long, with dense strigae 1–1.5 mm long, bracteoles ovate, 6–7 mm long, 3–4 mm wide, outside with lax cilia and strigae ca. 1 mm long; tepals 4, outer 2 pink with red nerves, subrotundate, 1.3–1.5 cm long, 1.2–1.4 cm wide, apex rotundate, outside with strigae 1–1.5 mm long, inner 2 pinkish, obovate, 1.2–1.4 cm long, 0.6–0.7 cm wide, glabrous; sta-

mens numerous, filaments connate at the base, 1.5–2.1 mm long; anthers yellow, obovate, 1.4–1.5 mm long, 0.6–0.7 mm wide, apex emarginate, rimae of anthers erect. ♀ flowers: tepals 3, rarely 4, outer 2 pink, rotundate, 8–9 mm diam., inside glabrous, outside with lax hairs 1–1.5 mm long, inner pinkish, oblong, 6–7 mm long, 2–3 mm wide, glabrous; ovaries coniform, 8–9 mm long, densely covered with strigae 1.5–2.0 mm long, 3-winged, unilocular; parietal placenta with 3 bilobate placentae from the bottom to top of ovary; styles 3, 1–1.5 mm long, slightly connate at the base, stigmas lycotropal. Mature capsules nodding, ovate (excluding wings), 0.8–0.9 cm long, 4–4.5 mm diam., with 3 persistent styles and 3 wings; wings 3, subequal, densely covered with strigae ca. 1 mm long, minor 2 luniform, 2–2.3 mm long, major broadly oblong, 2–3 mm long, apex subtruncate, the superior margin descending, the inferior margin ascending. Flowering from Feb to Jun.

China. Guangxi: Bama (巴马), on limestone hill, alt. 200 m, 2004-02-07, Y. M. Shui et W. H. Chen B2004-104 (KUN); **Donglan (东兰)**, on rocks in limestone bushes of hillside, alt. 500 m, 2004-02-17, flowers pink, Y. M. Shui et W. H. Chen B2004-198 (KUN, PE); ibid., under the limestone cliff, alt. 550 m, 2004-02-18, flowers pink, Y. M. Shui et W. H. Chen B2004-202 (holotype, KUN; isotypes, IBSC, PE).

Acknowledgements: Many thanks for Prof. Ku Tsue-chih (Institute of Botany, CAS) for her instruction, Prof. Fang Ding (Guangxi Institute of Medicinal Plant) for his great help in collecting and examining specimens of *Begonia* (GXMI). We also thank Prof. Huang Su-hua (Yunnan University), Prof. Su Zhi-yun (Kunming Institute of Botany, CAS) for perfecting manuscript. Besides, Prof. Guan Kai-yun, Ms. Li Jing-xiu, and Dr. Li Hong-zhe are so kind to give us greenhouse to cultivate some plants of *Begonia* in the Kunming Botanical Garden. We also thank Prof. Zhang Dian-xiang (IBSC), Prof. Liao Wen-bo (SYS), Ms. Du Yu-feng (PE), Ms. Wang Jing-hua (KUN), Ms. Ling Hui-zhu and Mr. Qin De-hai (GXMI) for offering convenience to examining specimens. We also thank Mr. Wei Yi-gang, Mr. Liu Yan (Guangxi Institute of Botany), Mr. C. I. Peng, Mr. W. C. Leong and Mr. S. M. Ku (Institute of Botany, Academia Sinica, Taiwan) for related data or fieldwork. In the field work, the following are helpful, e. g. Mr. Zhang Yong-hong, Mr. Zhang Mei-de, Mr. Nie Ze-long, Ms. Wei Zhi-dan, Ms. Pu Chun-xia and Mr. Liu Guang-Fu (Kunming Institute of Botany, CAS), Mr. Liu Qi-jian (Honghe Prefecture Forestry Bureau, Yunnan), Mr. Zhou Xiao-long (Gejiu Management Bureau, Dawei Mount. National Natural Reserve, Yunnan), Mr. Xiao Bo (Malipo Forestry Bureau, Yunnan), Mr. Wang Deng-gao (Guangnan Forestry Bureau, Yunnan) and Mr. Nong Zhong-gang and Mr. Chen Tian-bo (Nonggang National Natural Reserve, Guangxi). We also thank Mr. Wu Xi-lin, Ms. Wang Ling, Ms. Zhang Rong-mei (Kunming Institute of Botany, CAS) and Mr. Zhang Ke (Yunnan University) for their illustrations.