

An Unusual New Species of *Begonia* (Begoniaceae) from Vietnam

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Abstract

An unusual new *Begonia* species, *Begonia cucphuongensis* H. Q. Nguyen & Tebbitt, is described from limestone ridges in northern Vietnam.

Introduction

In 2004, the first author discovered a very distinct species of *Begonia* in Vietnam's Cuc Phuong National Park, which is newly described and illustrated here.

This species has an unusual combination of morphological characters and cannot be classified within any of the 66 recognized sections of *Begonia* (Doorenbos *et al.*, 1998; Shui *et al.*, 2002; Forrest and Hollingsworth, 2003; de Wilde and Plana, 2003). In many respects the species is similar to *B. boissiana* Gagnep., which also has never been assigned to a section despite having been described as long ago as 1919. Both species share a combination of characters not otherwise found in the Begoniaceae – both are caulescent herbs with a distichous leaf arrangement, have palmate-pinnate leaf venation, lunate stigmas, and entire placentae and lack cystotyles. Both species are also restricted to shallow soils overlaying limestone in northern Vietnam. Given these similarities, the two species may well be closely related.

However, the two species differ considerably in several respects. Most notably *B. cucphuongensis* has a rhizome, while *B. boissiana* is non-rhizomatous, it also has protogynous rather than protandrous inflorescences, female flowers with three rather than five tepals and a markedly different fruit shape. Since many of the characters by which the two species differ are considered taxonomically important in the sectional classification of

Begonia, we refrain from classifying either species into an existing section or from creating any new sections to accommodate these species. This must await completion of an ongoing molecular phylogenetic analysis of these and other Indo-Chinese *Begonia*.

Begonia cucphuongensis* H. Q. Nguyen & Tebbitt, *sp. nov.

Haec species *Begoniae boisianae* affinis, sed ab ea habitu rhizomatoso, in floribus femineis tepalis 3 et ovarii alis aequalibus distinguitur. **Typus:** Vietnam. Ninh Binh Province: Cuc Phuong National Park, 19 June 1999, shade on limestone-derived soil, forest dominated by *Streblus macrophyllus*, M. A. Jaramillo *et al.* MAJ 493 (holo HN; iso CPNP, F, MO).

Figure 1, Plate 1A

Monoecious, shortly rhizomatous, perennial herb, with an upright stem 30–40 cm tall. *Stems* few-branched, internodes 1.5–6 cm long, sparsely hairy. *Stipules* persistent, white, red or purple, elliptic to lanceolate, 1–1.5 x c. 0.3 cm, apex acute, ending in a short hair, margin entire. *Leaves* distichous; lamina asymmetric, ovate-lanceolate to oblong-lanceolate, 7–12.5 x 2–4.5 cm, above green, beneath paler green, often reddish tinged, both surfaces glabrous, apex acuminate, base oblique-cordate, margin with a few widely spaced short teeth-like multiseriate hairs where main veins terminate, teeth-like hairs 1–3 mm long, venation palmate-pinnate; petiole green, 1.5–4.5 cm long, with sparse microscopic uniseriate glandular hairs. *Inflorescences* axillary towards apex, cymose, 2–3-branched, 10- to 15-flowered, bisexual, protogynous; peduncle green, glabrous, 1–2 cm long; bracts persistent, pale purple or white, ovate or elliptic, 2–5 x 2–4 mm, margin dentate. *Flowers* white to pink. *Staminate flowers*: pedicel 0.8–1.7 cm long, glabrous; tepals 4, outer two ovate-cordate to cordate, 6–7 x 5–6 mm, margins entire; inner two oblong, c. 5 x 2 mm, glabrous, margin entire; androphore absent; stamens 15–40, yellow; anthers obovate, c. 1 mm long, apex truncate or rounded, connective not projecting, filament c. 1 mm long. *Pistillate flowers*: bracteoles absent; pedicel c. 1 cm long, glabrous; tepals 3, outer two obovate, c. 8 x 8 mm, margin entire, the inner one elliptic, 7–8 x 3–6 mm, margin entire. *Ovary* pink, 3-locular, elliptic, 1–1.2 x 0.6–0.7 cm long, glabrous, wings 3, equal, arcuate-deltoid, c. 8 mm tall, projecting past locules for c. 1 mm at apex and c. 2 mm at base; placentae axile, entire; styles 3, shortly fused at base, 2–3 mm long, yellow, unbranched, stigmas lunate. *Fruits* becoming dry and dehiscing via slits positioned next to the wings, c. 1.2 cm long.

Distribution: Vietnam, Ninh Binh province, Nho Quan District, Cuc Phuong

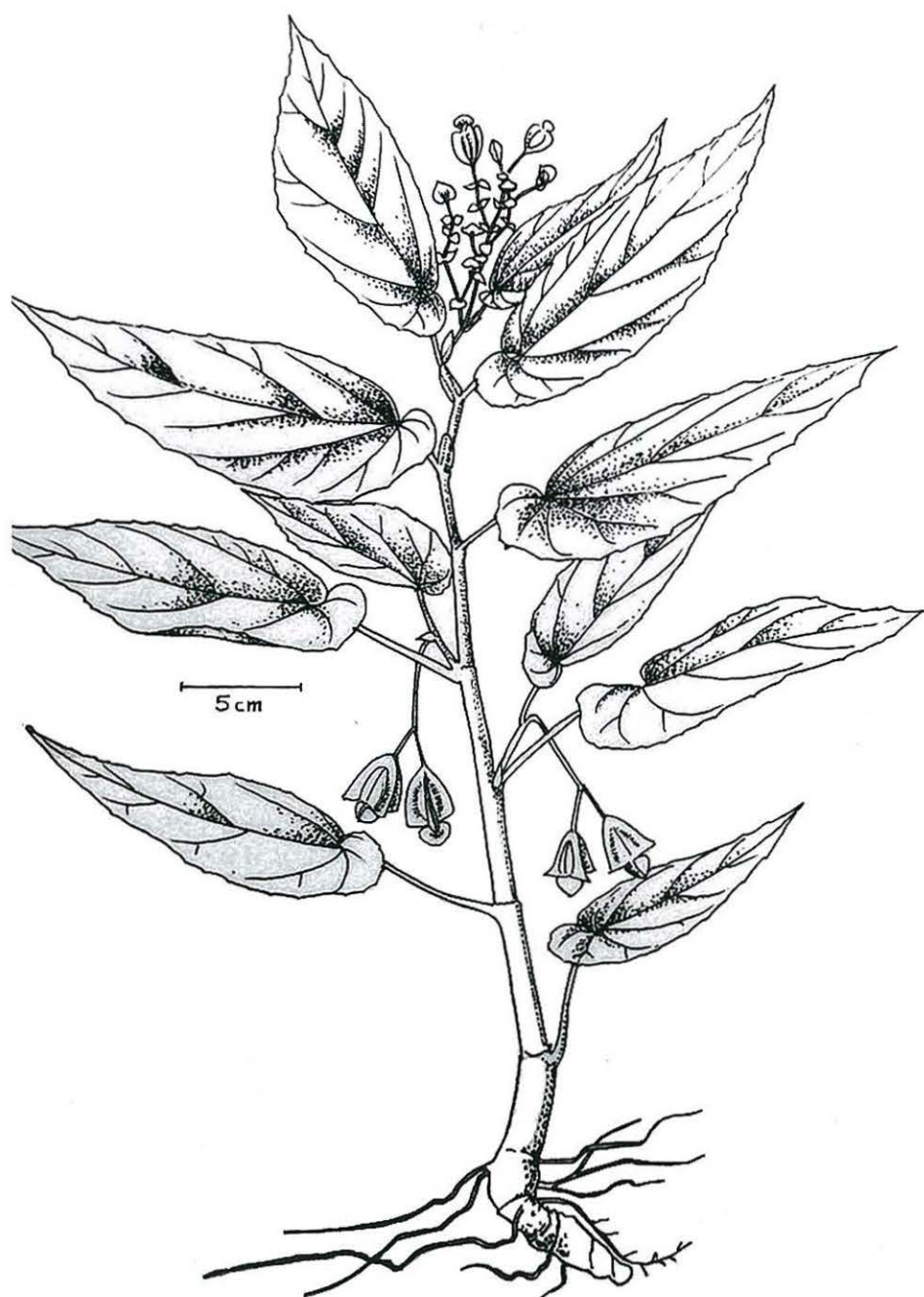


Figure 1. *Begonia cucphuongensis* H. Q. Nguyen & Tebbitt. (P.K. Lok et al. P10408).

National Park; Thanh Hoa Province, Ba Thuoc District, Pu Luong protected area.

Other specimens examined: Vietnam. Thanh Hoa Province, Ba Thuoc District, Pu Luong protected area, 500–700 m, 20°25'48"N, 105°14'13"E, 13 April 2001, *N. T. Hiep et al. HAL 937, 939* (CPNP, F, HN). Ninh Binh Province, Cuc Phuong National Park, Bong 20°21'04"N, 105°35'16" E, on limestone ridge, 500 m, 20 July 2000, *P. K. Loc et al. P10323, 10408* (CPNP, F, HN); 9 Dec 1999, *N. T. Hiep et al. NTH 4098* (HN); 18 Nov 1999, *N. T. Hiep & N. X. Tam 4093* (HN); 15 Mar 2000, *N. T. Hiep 4188* (HN); 15 Mar 2000, *N. T. Hiep 4189*; *D. D. Soejarto et al. 11080* (CPNP, F, HN).

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References

- Doorenbos, J., M. S. M. Sosef and J. J. F. E. de Wilde 1998. *The Sections of Begonia Including Descriptions, Keys and Species Lists (Studies in Begoniaceae VI)*. Wageningen Agricultural University Papers. 98–2, Netherlands.
- Forrest, L. L. and P. M. Hollingsworth. 2003. A recircumscription of *Begonia* based on nuclear ribosomal sequences. *Plant Systematics and Evolution*. **241**: 193–211.
- Shui, Y. M., C.-I. Peng and C. Y. Wu. 2002. Synopsis of the Chinese species of *Begonia* (Begoniaceae), with a reappraisal of sectional delimitation. *Botanical Bulletin of Academia Sinica*. **43**: 313–327.



Plate 1. Innflorescences of *A. B. boisiana* Gagnep. (NTH 3069) and *Begonia cucphuongensis* H. Q. Nguyen & Tebbitt (NTH 4098). Photographs H. Q. Nguyen.

Wilde, J. J. F. E. de. and V. Plana. 2003. A new section of *Begonia* (Begoniaceae) from West Central Africa. *Edinburgh Journal of Botany*. **60**: 121–130.