Begonia hahiepiana, a New Species of Begonia Section Sphenanthera (Begoniaceae) from Vietnam

Nguyen Quang Hieu
New York Botanical Garden, 200th Street and Southern Boulevard, New York, New York 10458, U.S.A. hnguyen@nybg.org

Mark C. Tebbitt
Brooklyn Botanic Garden, 1000 Washington Avenue, Brooklyn, New York 11225, U.S.A. marktebbitt@bg.org

ABSTRACT. Begonia hahiepiana H. Q. Nguyen & Tebbitt (Begoniaceae; section Sphenanthera (Hasskarl) Warburg), a new species from Phu Tho Province, Vietnam, is described and illustrated. This new species is most readily distinguished from the closely related B. balansana Gagnepain and B. ceratocarpa S. H. Huang & Y. M. Shui by its upper leaf surfaces, which are an iridescent dark blue (rather than glossy green) and have deeply sunken veins giving them a puckered appearance (rather than smooth), by its outer pair of tepals having a covering of red trichomes on their outer surfaces (rather than appearing glabrous throughout), and by its fruits, which are spherical with three thickened rib-like wings (rather than being either rhomboidal with three horned appendages or star shaped with six, or sometimes five or seven, fleshy wedge-shaped points). Fieldwork indicates that the new species has a restricted distribution and a total population of less than 1000 individuals; it is recommended to be placed in the IUCN category VU D 1, 2.

Key words: Begonia, Begoniaceae, IUCN category VU D 1, 2, section Sphenanthera, Vietnam.

Begonia L. comprises roughly 1500 species distributed throughout the tropics and subtropics with the exception of northern Australia (Tebbitt, 2005). Because of its large size, Begonia has traditionally been subdivided into numerous sections. In the most recent inventory of the Begonia sections, Doorenbos et al. (1998) recognized 63 sections. However, since that publication, three new sections have been described (Shui et al., 2002; Forrest & Hollingsworth, 2003; de Wilde & Planas, 2003), bringing the total number to 66. Most sections are recognized based on a combination of morphological characteristics, with tepal number and characteristics of the styles, stigmas, ovaries, and fruit being particularly emphasized. As part of a taxonomic revision of Vietnamese Begonia conducted by the first author, a species from Begonia section Sphenanthera (Hasskarl) Warburg is here newly recognized.

Begonia sect. Sphenanthera is distributed from northeastern India, eastward to Taiwan and southward to Malaysia and Indonesia (Doorenbos et al., 1998). The section currently includes almost all the ca. 25 Asian species with fleshy baccate fruit and at one time was circumscribed solely on the basis of this characteristic (e.g., Irmscher, 1925). However, Shui et al. (2002) now recognize three Asian fleshy fruited Begonia species as constituting the section Leprosae (T. C. Ku) Y. M. Shui: B. cylindrica D. R. Liang & X. X. Chen, B. leprosa Hance, and B. longicarpa K. Y. Guan & D. K. Tian. Begonia sect. Leprosae is distinguished from section Sphenanthera by its members having clavate rather than turbinate fruit (Shui et al., 2002). Currently four species from section Sphenanthera are recognized as occurring in Vietnam: B. acetosella Craib, B. balansana Gagnepain, B. handelii Irmscher, and B. longifolia Blume (Tebbitt, 2003a, b). A fourth species from section Leprosae has recently been described from Vietnam, B. bataiensis Kiew (Truong et al., 2005). The three traditional members of this section occur in neighboring areas of southwestern China. The new species recognized here has fleshy, spherical fruit with three thickened rib-like wings and is accordingly assigned in Begonia sect. Sphenanthera, albeit molecular data (Tebbitt et al., unpublished data) suggest that this section is polyphyletic and requires division into smaller groups.

Within Begonia sect. Sphenanthera the new species is morphologically most similar to B. balansana and B. ceratocarpa S. H. Huang & Y. M. Shui. A particularly noticeable characteristic of this group is the prominent tertiary venation on the lower leaf surfaces. The new species is distinguished most readily from B. balansana by its upper leaf surface that is an iridescent dark blue (rather than glossy...
green), by the pistillate flowers having five tepals (rather than four) and three styles (rather than six, or sometimes five or seven), and by the fruits that are spherical with three thickened rib-like wings and which have three locules (rather than star shaped with six, or sometimes five or seven, fleshy wedge-shaped points and six, or sometimes five or seven, locules). The new species is distinguished from *B. ceratocarpa* most readily by its relatively short petiole (10–13 cm long vs. 23–30 cm long); its ciliate-denticulate leaf margin (rather than irregularly repand); its green to white tepals (rather than white, tinged pink); its outer pair of tepals in the staminate flowers, which are oblong (rather than broadly ovate to suborbicular) and are covered with red trichomes on their outer surfaces (rather than being glabrous throughout); its inner pair of tepals in the staminate flowers, which are oblong, yellow pilose (rather than ovate to lanceolate); and its fruits, which are spherical with three thickened rib-like wings (rather than rhomboidal with three horned appendages).

**Begonia hahiepiana** H. Q. Nguyen & Tebbitt, sp. nov. TYPE: Vietnam. Phu Tho Province: Thanh Son Dist., Xuan Son Mun., Xuan Son Nat. Park, shade on limestone-derived soil, 324 m, 30 Nov. 2000, V. X. Phuong, N. K. Khoi, N. Q. Binh & H. Q. Nguyen 3941 (holotype, HN; isotype, MO).

The new species is recommended to be placed in the IUCN category VU D 1, 2 (VU: vulnerable; D: criteria for population very small (1) or restricted (2)).

**Etymology.** The epithet honors the first author’s parents Nguyen Tien Hiep and Nguyen Bich Ha, who are thanked for nurturing his interest in botany.

**Paratype.** VIETNAM. PHU THO PROVINCE: Thanh Son Dist., Xuan Son Mun., Xuan Son National Park, shade on limestone-derived soil, N. T. Hiep et al. 6142 (HN).
Figure 1. *Begonia hahiepiana* H. Q. Nguyen & Tebbitt. —A. Habit. —B. Staminate flower. —C. Stamens. —D. Pistillate flower. —E. Style. —F. Cross section of ovary. Drawn from the holotype, *Phuong et al. 3941* (HN), by Bui Xuan Chuong.
Literature Cited

de Wilde, J. J. F. E. & V. Plana. 2003. A new section of *Begonia* (Begoniaceae) from West Central Africa. Edinburgh J. Bot. 60(2): 121–130.

Doorenbos, J., M. S. M. Sosef & J. J. F. E. de Wilde. 1998. The sections of *Begonia* including descriptions, keys and species lists (Studies in Begoniaceae VI). Wageningen Agric. Univ. Pap. 98/2.

Forrest, L. L. & P. M. Hollingsworth. 2003. A recircumscription of *Begonia* based on nuclear ribosomal sequences. Pl. Syst. Evol. 241: 193–211.

Irmcher, E. 1925. Begoniaceae. Pp. 548–588 in A. Engler & K. Prantl (editors), Die Natürlichen Pflanzenfamilien, 2nd ed. Engelmann, Leipzig.

Shui, Y. M., C. I. Peng & C. Y. Wu. 2002. Synopsis of the Chinese species of *Begonia* (Begoniaceae), with a reappraisal of sectional delimitation. Bot. Bull. Acad. Sin. 43: 313–327.

Tebbitt, M. C. 2003a. Taxonomy of *Begonia longifolia* Blume (Begoniaceae), and related species. Brittonia 55: 19–29.

———. 2003b. Notes on southeastern Asian *Begonia* (Begoniaceae). Edinburgh J. Bot. 60(1): 1–9.

———. 2005. Begonias: Cultivation, Identification and Natural History. Timber Press, Portland.

Truong, Q. T., R. Kiew & J. J. Vermeulen. 2005. *Begonia bataiensis* Kiew, a new species in section *Leprosae* (Begoniaceae) from Vietnam. Gard. Bull. Singapore 57(1): 19–23.