

***Begonia lamxayiana* Souvann. (Begoniaceae): a new species from Lao PDR**

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ABSTRACT. *Begonia lamxayiana* Souvann. is described and illustrated.

KEYWORDS: *Begonia*, new species, Lao PDR, biodiversity, Taxonomy

INTRODUCTION

Begonia L., a large genus of flowering plants, consists of *ca.* 1,820 species, and is widely distributed in the tropical and subtropical regions of the world. Laos is a part of the Indo-china region where little scientific documentation about the Begoniaceae family has been published, but there is a diversity of species in this family. Most areas of the country still need to be surveyed and many more specimens collected and examined. In an annotated checklist of Southeast Asian *Begonia*, there were present 13 species of *Begonia* distributed in Laos (Hughes, 2008). In the last 10 years, only three new species have been published from Laos such as *B. cladotricha* M. Hughes (Hughes, 2007), *B. afromigrata* J.J. de Wilde (De Wilde *et al.*, 2011) and *B. viscosa* Aver. & Nguyen (Averyanov & Nguyen, 2012).

Surveys and collections of these diverse plants for *ex-situ* conservation have been undertaken between 2011 and 2014. The cultivation of living plants collections at Pha Tad Ke Botanical Garden provides information on their growth performance, soil requirements and flowering habits. Morphological characteristics and measurements were taken directly from living specimens during field work. Ecological data were recorded and photographs of living specimens were taken in the field. In this paper, we describe new species of *Begonia* from Laos, with illustration and photographs below.

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TAXONOMICAL TREATMENT

Begonia lamxayiana Souvann., sp. nov.

Type: Lao PDR, Bolikhamxai province, Khamkeut district, Thongpe village, Nakai-Namtheun National Protected Area, primary evergreen forest along riverbanks, 1 August 2011, V. Lamxay, S. Lanorsavanh, K. Souvannakhoummane & Somphone VL 2198 (holotype HNL; isotypes Biology herbarium of National University of Laos & QBG). Figs. 1 & 2.

Monoecious perennial herb, up to 50 cm tall. *Stems* succulent, sub-erect to ascending with 2–4 branches, reddish to green, 5–10 mm in diam., internodes 2–3 cm long, swollen at nodes, whole stem covered by glandular hairs. *Leaves* alternate, 5–15 per plant, base-fixed; petioles red, adaxially slightly canaliculate, 5–10 mm long; blade succulent, asymmetric, membranous when dry, oblanceolate to elliptic, 5–8 × 2–4 cm; base oblique, truncate to subcordate; adaxial surface with dense sparse bristles, green; abaxial surface with dense glandular hairs along the veins, pale green; midrib prominent abaxially; lateral veins 6–7 per side with veins branching at half-way to margin; margin serrate; apex caudate or long acuminate. *Stipules* persistent, pale green, ovate-lanceolate, ca. 10 × 4–5 mm, glabrous, apex acuminate, margin entire, keeled adaxially, light green. *Inflorescences* axillary from the upper half of the stem; dichasial cymes, with 2–8 branches, 5–30 mm long with 2–4 male flowers and 1–2 female flowers per branch, protogynous; bracts semi-persistent, membranous, sub-orbicular,

2–3 × 2–2.5 mm, apex acute, margin ciliate, glabrous; peduncles 0.5–1 cm long, green, glabrous. *Male flowers* on 4–10 mm long pedicels, white, glabrous; tepals 4, white, outer 2 suborbicular, 5–8 × 5–7.5 mm, apex rounded, base truncate, margin entire, glabrous on both surfaces; androecium zygomorphic, globose, stamens 20–30, golden yellow; filaments up to ca. 1.5 mm long, fused at the base into a distinct column; anthers obcordate, dehiscing by longitudinal slits, ca. 0.5 mm long. *Female flowers* on ca. 5 mm long pedicels, white, glabrous; tepals 5, unequal, outer 2 broadly elliptic, inner three elliptic to oblanceolate, white, 4–8 × 3–6 mm, apex rounded, base cuneate, margin entire, glabrous on both surfaces; styles 3, shortly fused at base, yellow; stigmatic band kidney-shaped, papillose; ovary with 3 subequal wings, wings plain light greenish to red; capsule elliptic, white, 3-locular with axile placentation. *Fruits* pendent on a stalk 5–8 mm long, capsule 10–12 × 12–15 mm (wings included), glabrous, wings rounded at the base, truncate distally. *Seeds* ellipsoid, ca. 0.3 mm long, light brown.

Distribution and ecology.— *Begonia lamxayiana* is endemic to Khamkeut district, Bolikhamxai province. It is known only from type locality such as valley terrains or stream banks, on shaded steep slopes in very wet primary evergreen forest, associated with *Magnolia* sp., *Alpinia* sp., *Zingiber* sp., *Anoectochilus* sp., Bamboo, and terrestrial ferns, elevation ca. 570 m.

Phenology.— Flowering from June to August and fruiting from August to October.



FIGURE 1. *Begonia lamxayiana* Souvann. A. Plant; B. Stem with inflorescences; C. Male flower, lateral view; D. Male flower, front view; E. Cross section of ovary; F. Female flower, lateral view; G. Female flower, front view; H. Anthers (Scales bar: A = 5 cm, B = 3 cm, C, D, E, F, G = 1 cm & H = 2 mm). Drawn by K. Souvannakhoummane from *Lamxay et. al. VL 2198*.

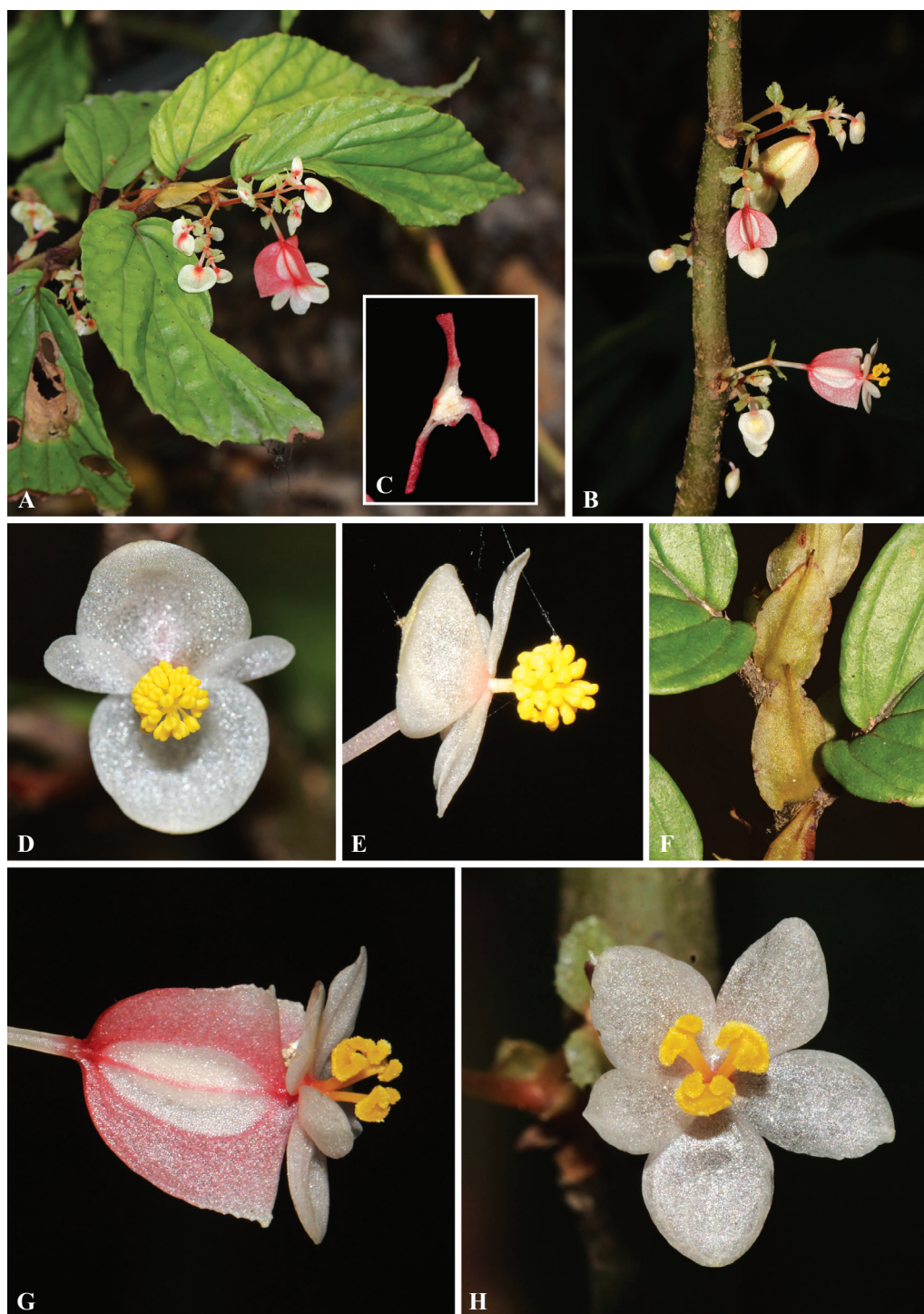


FIGURE 2. *Begonia lamxayiana* Souvann. A. Plant shoot with inflorescences; B. Inflorescences at stem; C. Cross section of ovary; D. Male flower, front view; E. Male flower, lateral view; F. Stipules; G. Female flower, lateral view; H. Female flower, front view. Photos by K. Souvannakhummane from *Lamxay et al. VL 2198*.

Etymology.— The epithet is in honour of Assist. Prof. Dr. Vichith Lamxay, who collected the type specimens.

Notes.— This species is similar to *B. boisiiana* Gagnep. (found in Vietnam) but differs by having glandular hairs on the stem (vs. glabrous), leaves with bristles on the adaxial surface (vs. glabrous), zygomorphic androecium (vs. actinomorphic) and semi-persistent bracts, margin ciliate, pale green (vs. persistent bracts, margin dentate, pale purple or white). It is similar to *B. cucphuongensis* H.Q. Nguyen & Tebbitt (found in Vietnam) but differs by having leaves with bristles on the adaxial surface and dense glandular hairs along the veins abaxially (vs. both surfaces glabrous), anther apex emarginated (vs. truncate to rounded), female flowers with 5 tepals (vs. female flowers with 3 tepals) and stigmatic band kidney-shaped and papillose (vs. stigmatic lunate).

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REFERENCES

- Averyanov, L.V., & Nguyen, H.Q. 2012. Eleven new species of *Begonia* L. (Begoniaceae) from Laos and Vietnam. **Turczaninowia** 15(2): 5–32.
- De Wilde, J.J.F.E., Hughes, M., Rodda, M. & Thomas, D.C. 2011. Pliocene intercontinental dispersal from Africa to Southeast Asia highlighted by the new species *Begonia afromigrata* (Begoniaceae). **Taxon** 60(6): 1685–1692.
- Hughes, M. 2007. *Begonia cladotricha* (Begoniaceae): a new species from Laos. **Edinburgh Journal of Botany** 64(1): 101–105.
- . 2008. **An annotated checklist of Southeast Asian Begonia**. Royal Botanic Garden Edinburgh.