

## ***BEGONIA CLADOTRICHA (BEGONIACEAE): A NEW SPECIES FROM LAOS***

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A new species of *Begonia* (*Begoniaceae*) is described from Khammouan Province in Laos. The new species, *Begonia cladotricha* M.Hughes, belongs in *Begonia* sect. *Diploclinium*, and is unusual amongst Asian *Begonia* in having basally branched hairs on all vegetative parts of the plant.

*Keywords.* *Begonia*, Laos, new species, trichome.

### INTRODUCTION

Laos is one of the most botanically unexplored countries in Asia, and has recently been the focus of a Darwin Initiative project (163-13-007) to build capacity in taxonomic expertise. Amongst the collections resulting from this project is a new species of *Begonia*, *B. cladotricha* M.Hughes, collected from a limestone karst habitat in the Mahaxai District of Khammouan Province. Gagnepain (1921) listed five species in the *Flore Général de l'Indochine* as native to Laos (*Begonia hymenophylla* Gagnep., *B. integrifolia* Dalzell, *B. laciniata* Roxb. [= *B. palmata* D.Don], *B. siamensis* Gagnep. and *B. sootepensis* Craib), and a recent new record from Tebbitt (2003) (*B. acetosella* Craib) increases the number to six. It is likely that a significant number of new records and new taxa await discovery in Laos.

*Begonia cladotricha* is classified here in *Begonia* sect. *Diploclinium* due to it possessing a tuberous rhizome, axillary inflorescences, female flowers with five tepals and a three-locular fruit with bifid placentae. *Begonia* sect. *Diploclinium* is a heterogeneous section comprising 142 species (Doorenbos *et al.*, 1998) which has been confirmed as being polyphyletic (Tebbitt *et al.*, 2006). The affinity of *Begonia cladotricha* within this group is difficult to say with certainty, but in its gross vegetative morphology it resembles species such as *B. soluta* Craib and *B. incerta* Craib in *Diploclinium* group III *sensu* Doorenbos *et al.* (1998).

The new taxon is named *Begonia cladotricha* due to it possessing basally branched hairs on most parts of the plant. The hairs are c.1–1.5 mm long, with 3–4 branches c.100–200 µm long extending from the base which are pressed against the plant body (Fig. 1), and are unique in the genus. *Begonia* with complex trichomes are unusual outside of Africa, and only one other species in the Indo-Chinese region is known to possess them: *B. sinuata* Wall. ex Meisn., which has stellate hairs and is not yet

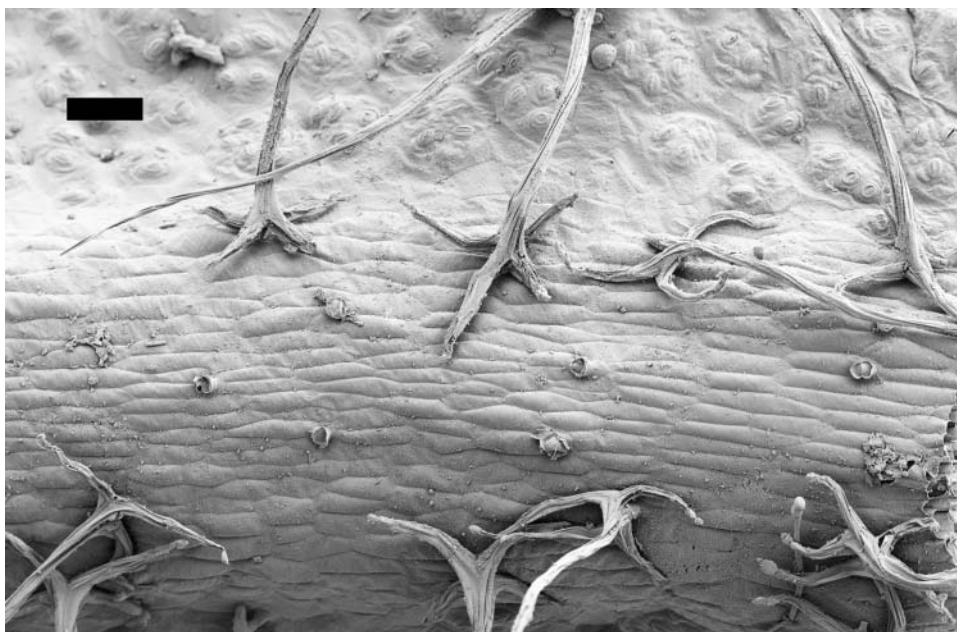


FIG. 1. Scanning electron micrograph of the underside of a leaf of *Begonia cladotricha*, showing the branched bases of the trichomes. Scale bar (top left) represents 100  $\mu\text{m}$ .

recorded from Laos. Indeed, sterile material of *Begonia cladotricha* was initially mistaken for that widespread and variable species when it first arrived in Edinburgh. However, as well as having different trichomes, it differs from *Begonia sinuata* (in *Begonia* sect. *Parvibegonia*) in having three- (not two-) locular fruit. The only other species in *Begonia* sect. *Diploclinium* with branched hairs (which differ from those of *B. cladotricha*) is *B. picta* Sm., a much coarser species from the Himalayan region which has branched, flattened scale-like hairs on the capsule only.

I consider this species to fall into the IUCN category of Least Concern (IUCN, 2001). Although its area of occupancy may be less than the 20 km<sup>2</sup> it would take to include it in the Vulnerable D2 category, there are no present threats to the reasonably extensive limestone habitat in the vicinity of the type locality (Philip Thomas, pers. comm.). The land surrounding the limestone karsts is used for agriculture, but this does not appear to have a significant impact on the cliff habitat of *Begonia cladotricha* (Mark Newman, pers. comm.). However, this area is not under legal protection at the time of writing, and given the threats to limestone karst in other parts of southeast Asia (Clements *et al.*, 2006), the conservation status of this species may be prone to change.

***Begonia cladotricha* M.Hughes, sp. nov. Sect. *Diploclinium*. Fig. 2.**

*Begonia cladotricha* ab omnibus aliis speciebus sectionis *Diploclinii* plantae in omnibus partibus vegetativis pilos basaliter ramosos habenti differt. – Type: Laos,

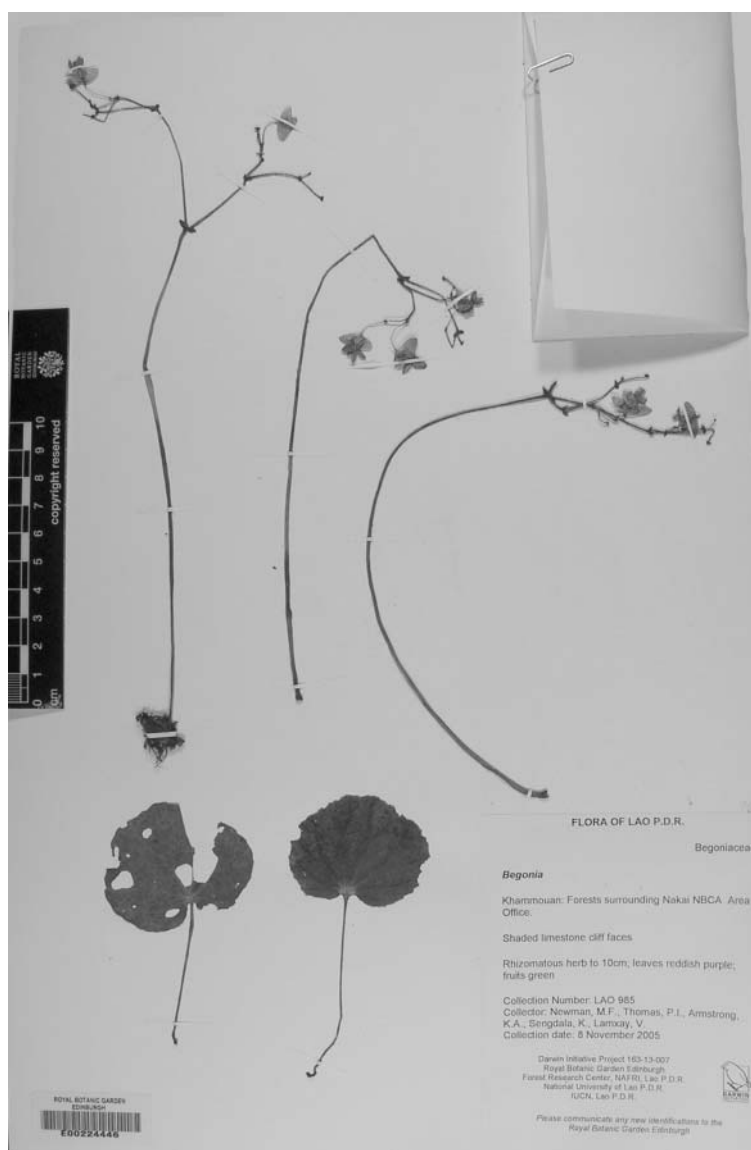


FIG. 2. Holotype (in E) of *Begonia cladotricha*.

Khammouan, Mahaxai District, forests surrounding Nakai NBCA Area Office, on shaded limestone cliff faces, 8 xi 2005, *M.F. Newman, P.I. Thomas, K.A. Armstrong, K. Sengdala & V. Lamxay* LAO 985 (holo E; iso National University of Laos Faculty of Science).

Stem a tuberous rhizome, c.6 mm thick when dry, dark brown and c.1 cm across in life, internodes 1–2 mm apart, with dense branched ginger hairs c.1.5 mm long,

becoming glabrous with age. *Stipules* persistent, triangular, c.5 × 3.5 mm, keeled, with scattered branched ginger hairs, denser on the keel. *Leaves* several, arising directly from the rhizome; petiole up to 7 cm long (much shorter in cultivated material) with sparse branched ginger hairs c.1.5 mm long; lamina held at an angle to the petiole, orbicular-reniform, symmetric, cordate at the base, margin irregularly dentate-sinuate, c.4 × 5 cm (length including basal lobes); venation palmate, 6 main veins with 2 more in the basal lobes; upper surface mottled purple-green and dark green with sage-green blotches between the veins, scattered branched hairs present; lower surface pale green with scattered branched hairs, more hairs present on the veins. *Inflorescence* axillary, cymose, arising from the rhizome, c.25 cm long, 3–4 times dichotomous; primary peduncle to c.18 cm, striate when dry, with scattered branched hairs, denser just below the bracts; pedicels 10–15 mm long, hair-like when dry; bracts persistent, boat-shaped, keeled, c.4 mm long, becoming smaller towards the tips of the inflorescence, with scattered branched ginger hairs, denser on the keel; male flowers unknown; female flowers (Fig. 3) with a pedicel c.15 mm long; ovary c.7 × 21 mm including wings, three winged, wings sub-equal, sub-equilateral-triangular with a rounded tip, 3–5 mm long, bracteoles absent; tepals 5, sub-equal, outer 7 × 3 mm, inner three smaller (smallest 6 × 1.5 mm); styles 3, stigmatic surface U-shaped, not spiralled. *Fruits* presumably pendent, shape as for ovary, three locular,



FIG. 3. Female flower and developing fruit, taken from holotype. Scale bar represents 1 cm.

placentation axile, placentae bifid, capsule orbicular, dehiscing along the base of attachment to the wings, with scattered branched hairs.

*Other material examined.* Living material RBGE accession no. 20060843 (Laos, Mahaxai District, Khammouan, limestone cliffs near Gnommalat, 27 v 2006, M.F. Newman, P. Thomas, K. Armstrong, V. Lamxay & K. Sengdala LAO 1381).

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