

***BEGONIA VARIPELTATA (BEGONIACEAE):
A NEW PELTATE SPECIES FROM
SULAWESI, INDONESIA***

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A new species of *Begonia* (*Begoniaceae*), *B. varipeltata* D.C.Thomas, is described from the Indonesian island of Sulawesi. It exhibits peltate leaves, which are rare in *Begonia* section *Petermannia*, to which it belongs.

Keywords. *Begonia*, new species, peltate, Sulawesi.

INTRODUCTION

The Indonesian island of Sulawesi (formerly more commonly known as Celebes) has been of prime interest to biogeographical research for almost 150 years (e.g. Wallace, 1860; Whitmore, 1981; Van Balgooy, 1987; Evans *et al.*, 2003; Mendum & Atkins, 2004; Van Welzen *et al.*, 2005). There are several reasons for this: (i) the island's complex geological history, in which fragments of different tectonic plates were amalgamated (Hall, 2002); (ii) Sulawesi's location at the western border of Wallacea, an interface region where Asian and Australian biotas meet (Van Welzen *et al.*, 2005); and (iii) Sulawesi's apparent floristic and faunistic separation from its nearest neighbouring island, Borneo (Wallace, 1860; Whitmore, 1981; Van Welzen *et al.*, 2005).

The taxonomy of many species-rich genera on Sulawesi (e.g. *Cyrtandra* and *Aeschynanthus* (*Gesneriaceae*) – Mendum & Atkins, 2004; *Begonia* (*Begoniaceae*) – Hughes, 2006; Hughes & Pullan, 2007), which would be ideal subjects for biogeographical studies, is very poorly known and revisions are needed. Thirty-one indigenous *Begonia* species have been described from Sulawesi (Doorenbos *et al.*, 1998; Doorenbos, 2000; Tebbitt, 2005; Hughes, 2006; Hughes & Pullan, 2007), but 'it is likely that a complete account of Sulawesi *Begonia* will more than double this total' (Hughes & Pullan, 2007). Recent expeditions to Sulawesi organised by the Royal Botanic Garden Edinburgh (RBGE) have brought to light several new *Begonia* species (Hughes, 2006), and another new species, which was brought into cultivation at RBGE, is described below. The majority of *Begonia* species from Sulawesi are classified in *Begonia* section *Petermannia* (27 species); one introduced

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species, *Begonia hirtella* Link, belongs to *Begonia* section *Doratometra* (Doorenbos *et al.*, 1998; Hughes & Pullan, 2007), and the remaining species belong to *Begonia* section *Sphenanthera* (to the '*Begonia longifolia* Blume complex'; see Tebbitt, 1997, 2003). The new species described below is classified in *Begonia* section *Petermannia* because it exhibits typical characters of the section: protogynous inflorescences, bifid placentae and anthers with unilaterally positioned slits (Fig. 1).

All available *Begonia* specimens from B, BM, E, K, L and SING (plus photographic duplicates from BO) have been consulted, and hence it must be assumed, at least until more intensive collecting in Sulawesi may reveal otherwise, that this species has a very restricted range. Figure 2 shows the collecting localities in Central Sulawesi (Tengah).

Cultivated material grown from the same seed collection as the holotype was used to supplement the description.

***Begonia varipeltata* D.C.Thomas, sp. nov. Sect. *Petermannia*. Fig. 1.**

Begoniae macintyreanae M.Hughes similis a qua caulibus pendulis (non erectis) et foliis aliquantibus peltatis (non omnibus basifixis) differt. – Type: Cultivated at the Royal Botanic Garden Edinburgh, from seed collected in the wild (Indonesia, Sulawesi, Tengah, Luwuk District, Bunta Subdistrict, Sumber Agung Village, Sungai SPA, 00°09'12.6"S, 122°09'28.8"E, 200 m), 24 ix 2007, D. C. Thomas 07-21 (holo E; iso L).

Perennial, monoecious herb. *Stems* woody at base, to 12 mm across, erect for 30–70 cm in the basal part, but pendent in the more distal part, the pendent part up to 54 cm long, internodes 3–10.2 cm long, glabrous. *Leaves* alternate, excentrically peltate or both excentrically peltate and basifixes leaves present; stipules 14–23 × 4–10 mm, oblong or narrowly elliptic, cymbiform with abaxially prominent midrib forming a thin, c.1–2 mm long appendage at the apex, caducous; petioles 1.2–4.2 cm long, glabrous; lamina very asymmetric, ovate, narrowly elliptic or oblong, 9.7–21.5 × 3.1–6.9 cm, margin irregularly serrate to dentate, glabrous, dark green above and pale green below, venation palmate-pinnate, base cordate (basifixes leaves) with not or only slightly overlapping lobes, apex acuminate. *Inflorescences* bisexual or unisexual, protogynous, cymose, composed of (0–)1 basal, female (partial-) inflorescence with 2 female flowers and (0–)1–6 distal, male (partial-) inflorescence(s), each with 2–7 cymose branching points, dichasial or with dichasial branching in the basal part and monochasial branching in the distal part, with c.5–30 flowers. *Male flowers*: pedicels 2–14 mm; tepals 2, broadly ovate to subcircular, 6–10 × 5–11 mm, base cuneate to truncate or tepal margin convex at base, apex rounded, white or pinkish, glabrous; androecium of c.25–30 stamens, yellow, symmetric, filaments slightly fused at the base, unequal, the longer in the middle, anthers obovate, slightly longer than to c.2 times shorter than the filaments, c.0.7–1.2 mm long, dehiscing through unilaterally positioned slits > ½ as long as the anther, connective not extended. *Female flowers*: pedicels 9–26 mm; tepals 5, obovate, unequal, 9–16 mm long,

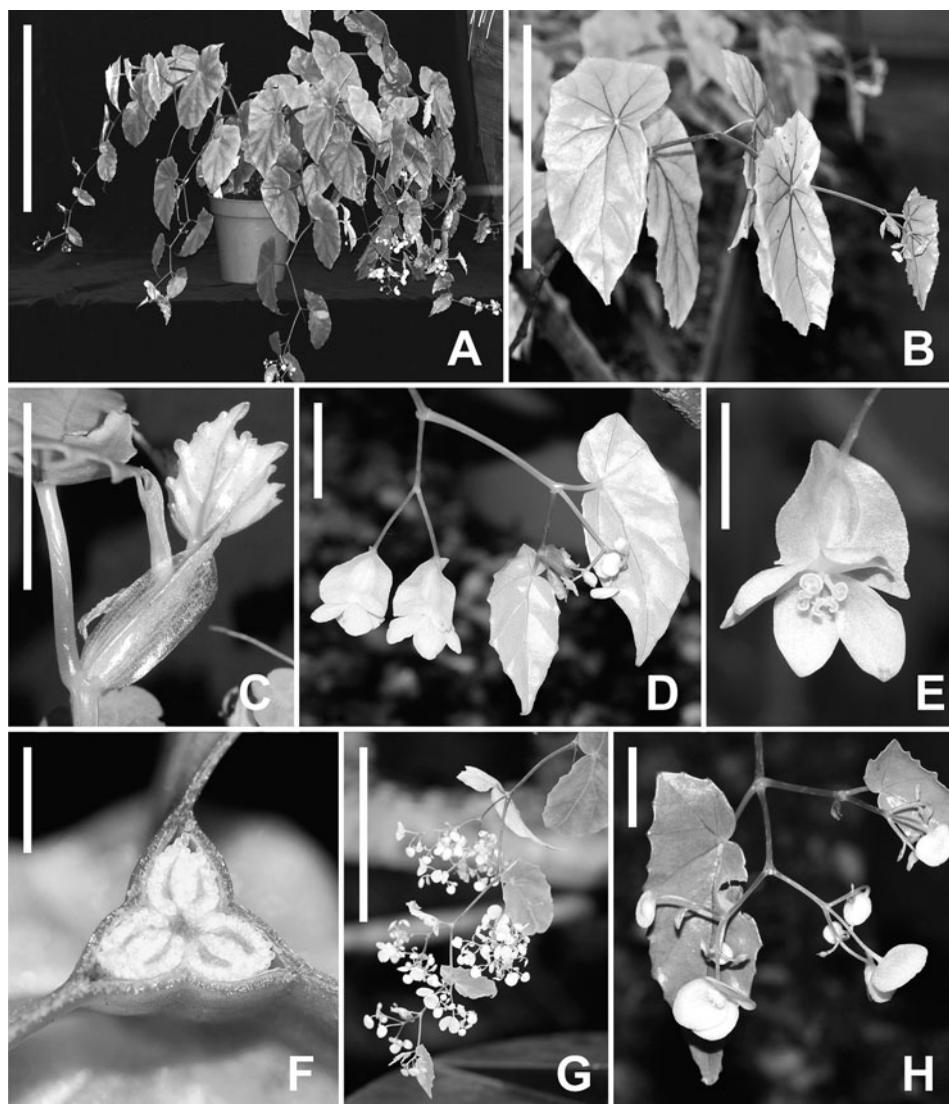


FIG. 1. *Begonia varipeltata* D.C.Thomas. A, habit (scale bar = 30 cm); B, peltate leaves (scale bar = 15 cm); C, stipule (scale bar = 2 cm); D, female partial inflorescence (scale bar = 2 cm); E, female flower (scale bar = 1.5 cm); F, ovary, cross-section, 3-locular with bifid placentae (scale bar = 2 mm); G, male inflorescence of 6 dichasial-monochasial male partial inflorescences (scale bar = 10 cm); H, male partial inflorescence with dichasial branching pattern (scale bar = 1.2 cm). A, E, G, H: *D.C. Thomas* 07-22; B, C, D, F: *D.C. Thomas* 07-21.

the four outer 5–12 mm wide, the innermost 3–7 mm wide, white, glabrous; ovary 8–12 mm long, 3-locular, placentation axile, placentae bifid, ovary 3-winged, wings subequal, 12–14 mm long and 5–11 mm wide at the widest point (in the most distal part), apex truncate or with convex margins, base with convex margins or cuneate,

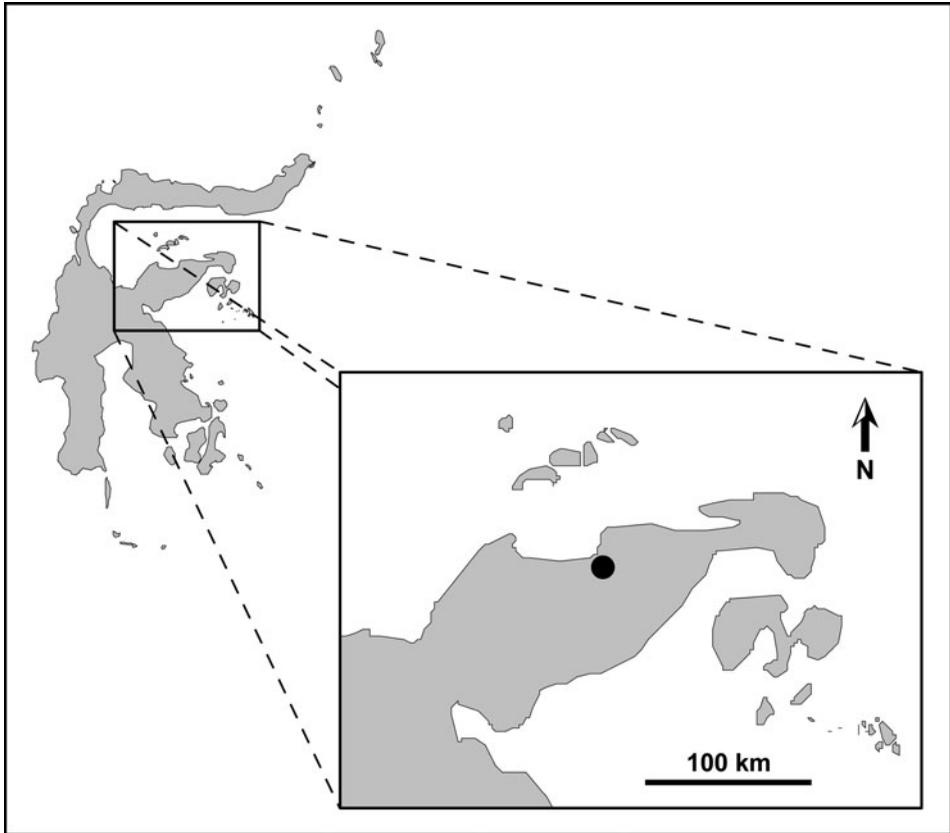


FIG. 2. Distribution of *Begonia varipeltata* in eastern Central Sulawesi (Tengah). ● = collection locality.

glabrous; style fused only in the very basal part, 3-branched, each styloidium bifurcate in the stigmatic region, deciduous, stigmatic surface a twice spirally twisted papillose band, greenish-yellow or yellow. *Fruits* pendulous, 3-winged, wing shape as for ovary, dehiscent, drying pale brown, glabrous. *Seeds* barrel-shaped, c.0.3 mm long, collar cells c. $\frac{2}{3}$ the length of the seed.

Distribution. Endemic to Sulawesi. Known only from two collections from the Luwuk District, Bunta Subdistrict, Sumber Agung, Sungai SPA in eastern Central Sulawesi (Tengah) (Fig. 2).

Habitat. Growing on rock walls along the sides of river banks and in disturbed primary forest at low altitudes (two collections at 92 m and 200 m, respectively).

Proposed IUCN conservation category. VU D2. The likelihood that this species has a very restricted range in an area which shows clear signs of anthropogenic disturbance, especially timber harvesting, and which has no legal protection as a national park, wildlife or forest reserve, makes it 'prone to the effects of human activities or

stochastic events within a very short time period in an uncertain future' (IUCN, 2001).

Additional specimens examined. SULAWESI. **Tengah:** Luwuk District, Bunta Subdistrict, Sumber Agung, Sungai SPA, 92 m, 24 ii 2004, *Hendrian, M. Newman, S. Scott, M. Nazre Saleh & D. Supriadi* 858 (E!); Cultivated RBGE, from seed collected in the wild in Luwuk District, Bunta Subdistrict, Sumber Agung Village, Sungai SPA, 00°09'12.6"S, 122°09'28.8"E, 200 m, *D.C. Thomas* 07-22 (E).

The epithet *varipeltata* refers to the variable transition of petiole and lamina in this species, which ranges from basifixed, to strongly excentrically peltate to almost centrally peltate. This great variation is similar to the condition described for *Begonia amphioxus* Sands (Sands, 1990). However, *Begonia amphioxus* clearly differs from *B. varipeltata* in both vegetative and generative morphology – for example, *B. amphioxus* has male flowers with four tepals, two-locular and usually two-winged ovaries, and distinctly narrower, spotted leaves (see Sands, 1990). Peltate species are rare in *Begonia* section *Petermannia* (only *Begonia amphioxus* and *B. baramensis* Merr.), and no peltate species of *Begonia* have been described from Sulawesi before. However, an analysis of all available *Begonia* specimens from Sulawesi in B, BM, E, K, L and SING (plus photographic duplicates from BO) showed that there are several undescribed peltate *Begonia* species from Sulawesi, which will be described in a subsequent paper.

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