REINWARDTIA
Vol. 20. No. 1. pp: 37–41
DOI: 10.14203/reinwardtia.v20i1.4141

BEGONIA ROBII, A NEW SPECIES OF *BEGONIA* FROM LIMA PULUH KOTA, WEST SUMATRA

Received June 12, 2021; accepted June 26, 2021

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ABSTRACT
ARDI, W. H., GIRMANSYAH, D. & HUGHES, M. 2021. *Begonia robii*, a new species of *Begonia* from Lima Puluh Kota, West Sumatra. *Reinwardtia* 20(1): 37–41. — A new species of *Begonia* sect. *Jackia* (Begoniaceae), *B. robii* Ardi & Girm., is described from West Sumatra and is a limestone karst endemic in the Tanah Datar dan Lima Puluh Kota Regency. Its provisional IUCN threatened category is considered to be Endangered.

Key words: Endemic, limestone, *Jackia*.

ABSTRAK
ARDI, W. H., GIRMANSYAH, D. & HUGHES, M. 2021. *Begonia robii,* jenis baru *Begonia* dari Lima Puluh Kota, Sumatra Barat. *Reinwardtia* 20(1): 37–41. — Jenis baru *Begonia* seksi *Jackia* (Begoniaceae) dipertelakan dari Sumatra Barat, dan merupakan jenis endemik bebatuan kapur di Kabupaten Tanah Datar dan Lima Pulu Kota. Evaluasi status konservasi berdasarkan IUCN untuk *Begonia robii* adalah terancam.

Kata kunci: Endemik, batu kapur, *Jackia.*

INTRODUCTION

Begonia studies in Sumatra have recently increased the number of species known from the island to 67 (Hughes *et al.*, 2009; Girmansyah *et al.*, 2019; Girmansyah *et al.*, 2020). The diversity is dominated by *Begonia* sect. *Jackia* M.Hughes (Moonlight *et al.*, 2018), which has 25 species native to Sumatra. One species is also found in Peninsular Malaysia, *Begonia yenyeniae* J.P.C.Tan (Tan *et al.*, 2018), while the 24 others are endemic to Sumatra. *Begonia* sect. *Jackia* was proposed to accomodate the rhizomatous species from Malesia which formerly belonged to *B.* sect. *Reichenheimia*. Based on molecular analysis, the rhizomatous species form a clade that is distant both geographically and phylogene tically from *B. thwaitesii* Hook. (Hooker, 1853), type species of *B*. sect. *Reichenheimia* from Sri Lanka (Moonlight *et al.,* 2018). The other sections found in Sumatra are *B*. sect. *Petermannia* (Klotzsch) A.DC. (de Candolle, 1859) with 15 spp., *B*. sect. *Platycentrum* (Klotzsch) A.DC. with 13 spp., *B*. sect. *Bracteibegonia* A.DC. with 13 spp. and *B*. sect. *Parvibegonia* A.DC with only one species (Hughes *et al.*, 2015).

Here we describe *Begonia robii* Ardi & Girm. as a new species from Sumatra in *B.* sect. *Jackia*. All available *Begonia* material in ANDA, BO, E, K, L and SING has been consulted, and therefore it must be assumed, at least until more intensive collecting reveals otherwise, that this species has a restricted distribution and is endemic to West Sumatra.

Species description

Begonia robii Ardi & Girm. *sp. nov.* § *Jackia.*
Figs. 1 & 2.
— TYPE: Cultivated at Bogor Botanic Gardens, from material collected in the wild (INDONESIA, Sumatra, West Sumatra, Lima Puluh Kota Regen-

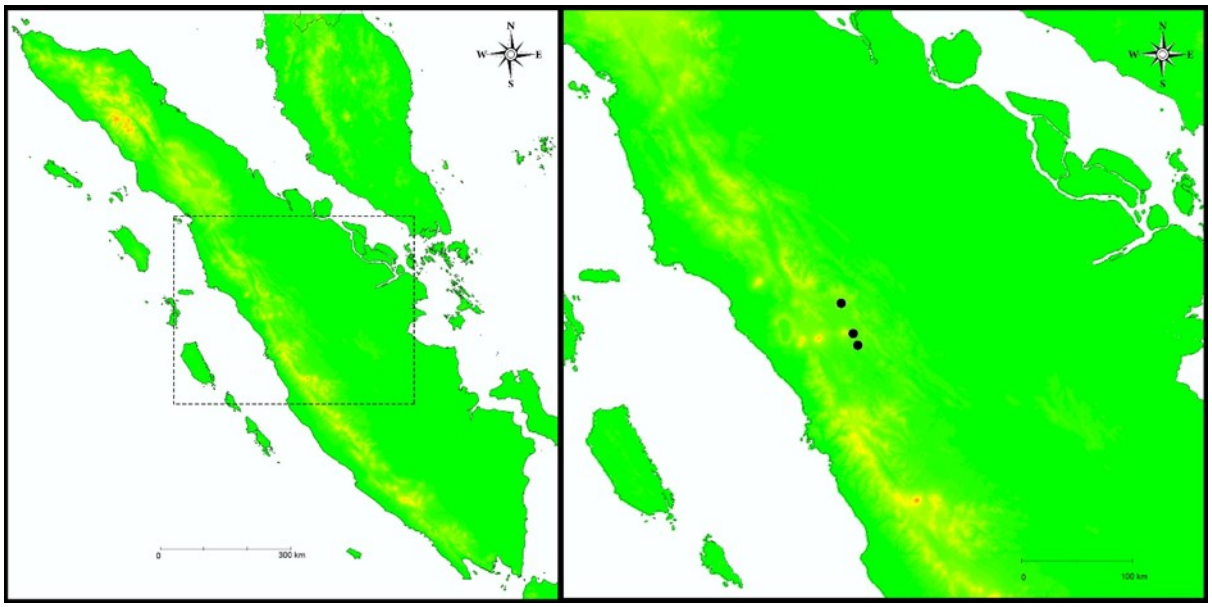

Fig. 1. Distribution of *Begonia robii* Ardi & Girm. Collection sites information was georeferenced using Geonames geographical database at http://www.geonames.org

cy, 31 March 2021), *Wisnu Handoyo Ardi WI 761* (Holotype BO, isotype E).

A limestone adapted species closely related to *Begonia droopiae* Ardi (Ardi & Hughes, 2010), in terms of its habit and variegated leaves, however it can be easily distinguished by its rounded leaf apex which have pale green blotches between the veins (not acuminate at the apex and green on the veins only), outer male flower tepals which are elliptic to obovate with an acute to rounded apex (*vs*. elliptic to suborbicular with a rounded apex), female flowers with two or three tepals, outer tepals 4–12 × 7–8.5 mm, elliptic (*vs*. female flower with three tepals, outer tepals 5.5–6 × 4.5–6 mm, orbicular to suborbicular), ovary *ca*. 8 × 5–6 mm, ovoid to ellipsoid, wings equal to subequal with a truncate to cuneate base, and a cuneate apex (vs. globose to broadly ellipsoid ovary, 6–7 × 10–13 mm, wings equal with rounded base and apex).

Perenial monoecious herb, up to 10 cm tall. *Stem* rhizomatous, light green with few white spots, sparsely hairy at the joint of stem and petiole, thickened and brown in older stems, rooting at the nodes, diameter 3–5 mm, internodes compressed 3–8 mm. *Leaves* alternate; *stipules* persistent, ovate, 8–10 × 7–9 mm, pale green, asymmetric, midrib abaxially prominent, hairy along the midrib to the apex extension, apex narrowed and extended up to 2 cm long; *petiole*s 3–9.5 cm long, reddish brown, terete, with long white pilose hairs, up to 4 mm long; *lamina* basifixed, broadly ovate, 4–7 × 6–9 cm, asymmetric, reniform, margin crenate, ciliate with recurved stiff teeth at the end of the veins, base cordate, rarely overlapped, apex mostly rounded, rarely shortly acute, adaxially light green on the veins and the leaf base, dark purple patches between the veins and light green blotches, glabrous, bullate, abaxially paler, sparsely hairs along the veins; venation palmate, primary veins 6–7, actinodromous, secondary craspedrodromous. *Inflorescences* bisexual, axillary, protandrous, cymes branching once dichasially at the base and at the two lateral branches branching monochasially, with up to 4 male flowers and one female at the apex, *peduncle* 7–13 cm long, pale green, sparsely hairy; bracts persistent, elliptic, *ca.* 3 × 2 mm, margin fringed, bracteoles minute, hair-like. *Male flowers*: pedicels 12–22 mm long, white, glabrous to sparsely hairy; tepals 4, unequal, 2 outer tepals elliptic to obovate, *ca.* 8–13 × 8–10 mm, margin entire, apex acute to rounded, white tinged pink, abaxially surface glabrescent; 2 inner tepals spatulate, 5–12 × 3–4.5 mm, margin entire, apex rounded; *androecium* globose, yellow; *stamens* 46–50, outer anthers subsessile, inner anthers on filaments about the same length as the anther, anthers 0.50 mm long, obtriangular, apex retuse, dehiscing through lateral slits about half the length of the anther. *Female flowers*: pedicel 8–18

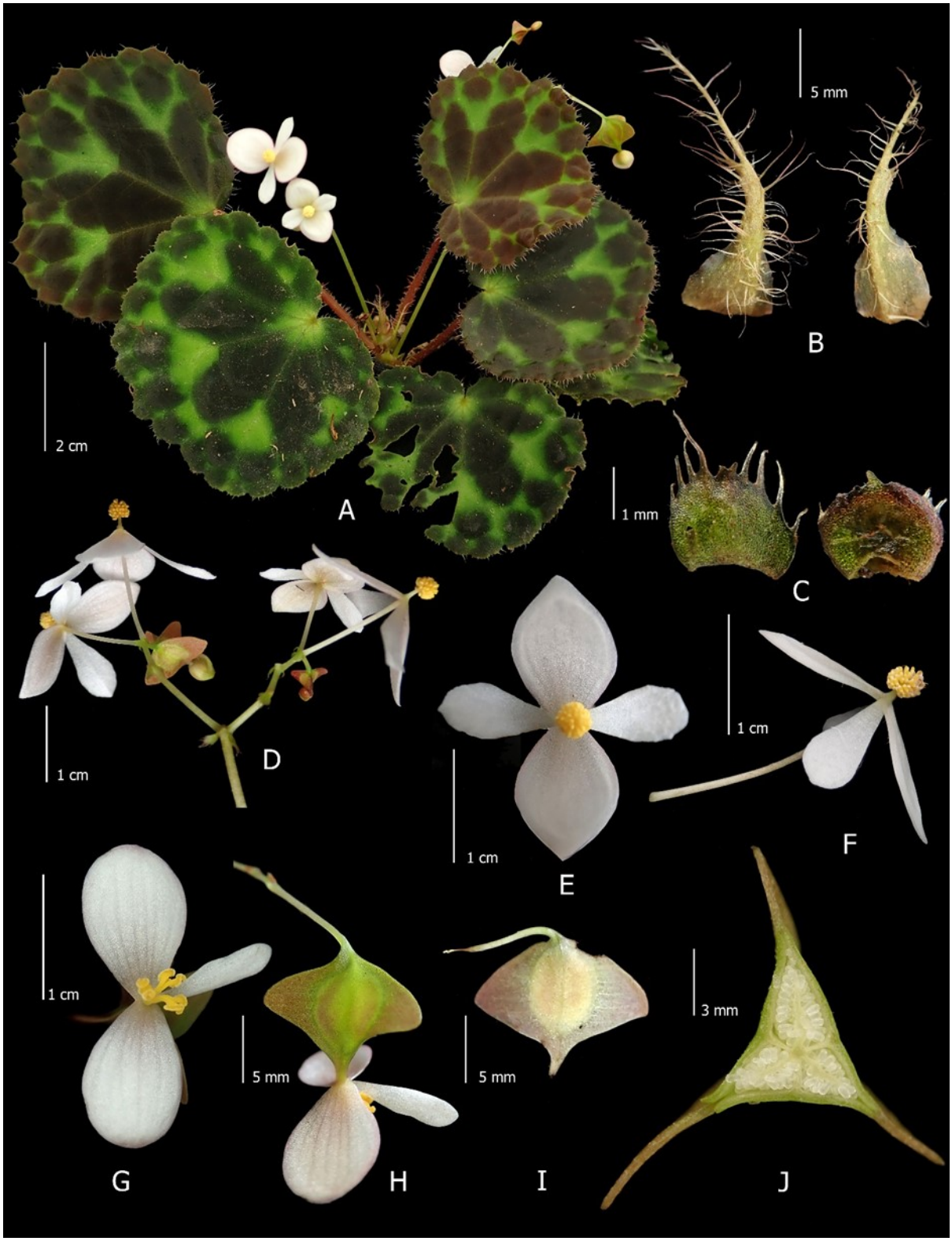

Fig. 2. *Begonia robii* Ardi & Girm. A. Plant habit. B. Stipules. C. Bracts. D. Inflorescence. E. Male flower, front view. F. Male flower, side view. G. Female flower, front view. H. Female flower, side view. I. Fruit. J. Ovary, cross section of middle part. From *Wisnu Ardi WI 761*. Photos by W.H. Ardi.

Table 1. Morphological characters comparions of *Begonia robii, B. nurii* and *B. yenyeniae.*

Characters	Species		
	B. robii	*B. nurii*	*B. yenyeniae*
Stipule	Ovate, 8–10 × 7–9 mm, pale green, apex narrowed and extended up to 2 cm long, hairy	Narrowly triangular 5–10 × 3–4 mm, red, apex narrowed filiform extended < 1 cm	Narrowly triangular 9–12 × 3–4 mm, pale yellowish green, apex narrowed filiform extended < 1 cm
Lamina	Broadly ovate, 4–7 × 6–9 cm, reniform	Suborbicular to orbicular, (2–)4(–7) × (3–)4–6 (–11) cm	Orbicular, 8–15 × 9.5–13.5 cm, reniform
Male flowers			
Pedicels	12–22 mm	3–7 mm	6–9 mm
Male outer tepals	*ca.* 8–13 × 8–10 mm, elliptic to obovate, with acute to rounded apex	4–7 × 4–5 mm, broadly ovate to suborbicular with rounded apex	5–7 × 6 mm, suborbicular with rounded apex
Male inner tepals	Two, 5–12 × 3–4.5 mm, spatulate, apex rounded	Two, narrowly ovate, 3–4.5 × 1–2.5 mm, apex rounded	Two, *ca*. 5 × 3 mm, obovate, apex rounded or sometime retuse
Female flower			
Pedicels	8–18 mm	9–15 mm	6–9 mm
Tepal number	2–3	2	3
Outer tepals	4–12 × 7–8.5 mm, elliptic,	4–6 × 3–5 mm, broadly ovate to suborbicular	*ca*. 2.8 – 1.9 mm, obovate
Ovary (shape and size)	Ovoid to ellipsoid	Ellipsoid	Ellipsoid
Wings	Equal to subequal, truncate to cuneate at base, cuneate at the apex	Equal, truncate at base, cuneate at the apex	Equal, rounded at base, cuneate to subtruncate at the base
Fruit			
Pedicels	10–20 mm	6–10 mm	*ca*. 5.5 mm

mm long, pale green, glabrous; *tepals* 2–3, unequal, white or white tinged with pink, 2 outer tepals elliptic, 4–12 × 7–8.5 mm, margin entire, apex rounded, inner tepal(s) narrowly obovate, 4–5 × 1–2 mm margin entire, apex rounded; *ovary* (excluding wings) ovoid to ellipsoid, *ca.* 8 × 5–6 mm, reddish, glabrous, locules 3, placentation axile, placentae entire, total size including the wings *ca.* 12 × 11 mm, capsule three locular, placentae entire; wings 3, equal to subequal, base truncate to cuneate, apex cuneate, widest point at the middle part up to *ca.* 6 mm long; stigmas 3, yellow, Y-shaped, *ca.* 4 mm long, surface once spirally twisted. *Fruit:* pendent on a thin 10–20 mm long pedicels, recurved, seed bearing part ovoid to ellipsoid, *ca.* 8.5 × 6.5 mm, tip beaked, wings shape as for ovary, widest point up to 6 mm long (middle part). *Seeds* unknown.

Distribution. Sumatra, endemic to West Sumatra, Lima Puluh Kota and Tanah Datar Regencies (Harau valley, Lintau Buo and Halaban). Fig. 1.

Etymology. The epithet is after the collector, Robi Satria.

Habitat. Limestone karst or sandstone forest, growing on vertical limestone cliffs in the shade.

Provisional IUCN conservation assessment. Endangered (EN B1ab(iii), EN B2ab(iii). Based on reports from the collector, *Begonia robii* is known from three localities of lowland limestone karst or sandstone. One of them is in a protected area, the Harau Valley Forest Reserve, which had small populations, however the habitat was burnt in 2019 and destroyed the populations. The Halaban population is also threatened by road development. The two other localities in Halaban and Lintau Buo, which are not legally protected areas. Although its quite abundant in Lintau, the species threatened by species trade, sold as ornamental plant. Based on georeferences and using GeoCat (Bachman *et al*., 2011) The extence of occurrence was estimated at $\pm$ 5000 km^2 and area of occupancy (12 km^2), in combination with observed threats and on going reduction of its habitat, we asses this species as Endangered.

Notes. *Begonia robii* is most closely allied with *B. droopiae* as discussed in the diagnosis. There are a few other species with similar habit and leave shape, such as *Begonia nurii* Irmsch. (Irmscher, 1929) and *Begonia yenyeniae* J.P.C.Tan, however *B. robii* can be differentiated from these two species by several combinations of characters (see Table 1).

ACKNOWLEDGEMENTS

We are grateful to Robi Satria who kindly provided the valuable samples. The curators of herbaria ANDA, BO, E, K, L and SING are thanked for facilitating access to specimens.

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