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Begonia mabuhayensis (section *Baryandra*, Begoniaceae), a new species from Surigao del Sur, Philippines

Freddie A. BLASCO[1,2,*], Grecebio Jonathan D. ALEJANDRO[2,3], Rosario R. RUBITE[4]

1. *College of Arts & Sciences and Teacher Education Department, Saint Theresa College of Tandag, Tandag City 8300, Surigao del Sur, Philippines.* ***2.*** *The Graduate School, University of Santo Tomas, España, Manila 1015 Philippines.* ***3.*** *College of Science and Research Center for the Natural and Applied Science, University of Santo Tomas, España, Manila 1015, Philippines.* ***4.*** *Department of Biology, College of Arts and Sciences, University of the Philippines Manila, Padre Faura, Manila, Philippines.* [*]*Corresponding author's email: fred8mse@gmail.com*

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ABSTRACT: *Begonia mabuhayensis* is described as a new species endemic to the Philippines from the multi-layered rocky floors of Mount Egang, Mabuhay, Tandag, Surigao del Sur. *B. mabuhayensis* closely resembles *B. amparoae* in having thick rhizomatous stems, stipules with aristate apex, thick and fleshy lamina, curved petioles, 4-tepaled staminate and pistillate flowers, ovary with unequal wings and nodding capsules, but differs in having shorter rhizome, glabrous oblong stipule with longer arista (vs. puberulous, triangular with shorter arista), ovate leaf (vs. broadly ovate), and capsule with orbicular wings and cordate apex (vs. angular and truncate). Following the IUCN criteria, the authors recommend *B. mabuhayensis* as Data Deficient (DD).

KEY WORDS: *Begonia amparoae*, *Begonia tanauanensis*, lithophytic, Mindanao Island, Surigao provinces.

INTRODUCTION

The genus *Begonia* Linnaeus is one of the largest angiosperm genera with *ca*. 2191 species classified into 70 sections (Hughes *et al*., 2015–; Moonlight *et al*., 2018). It is found in both the Neotropical and Paleotropical regions, with *ca*. 180 species recorded from the Philippines (Hughes *et al*., 2015–; Rubite *et al*., 2024). The *Begonia* of the Philippines are classified into 3 sections: *Baryandra* de Candolle (1859), *Petermannia* Klotzsch (1854) de Candolle (1859) and *Platycentrum* (Rubite *et al.,* 2024; Hughes *et al*., 2015–). Based on herbarium specimens in PNH and relevant literature, here are some of the recorded *Begonia* in sect. *Petermannia* collected in Surigao Provinces, namely: *Begonia abhak* Blasco *et al*., (2024b), *B. benitotanii* Rubite *et al*., (2021), *B. colorata* Warburg (1904), *B. contracta* Warburg (1904), *B. lanuzaensis* Blasco *et al*., (2021), *B. longistipula* Merill (1911), *Begonia matahom* Blasco *et al*., (2024a), *B. mindanaensis* Warburg (1904) and *B. noraaunoriae* Blasco *et al.,* (2023), while for section *Baryandra*, *B. amparoae* Blasco *et al*., (2022), *B. longiscapa* Warburg (1904) and *B. makuruyot* Rule *et al*., (2020).

During the field work in 2022 at Surigao del Sur, an interesting *Begonia* was found in a multi-layered rocky floor at Mt. Egang, barangay Mabuhay, Tandag City. With its rhizomatous habit, axillary inflorescence where staminate are basal and pistillate flowers distal, protandrous; four-tepaled staminate flowers and pistillate flowers, this begonia definitely belongs to section *Baryandra* (Rubite, 2012). We propose to name this new species *Begonia mabuhayensis* Blasco, Alejandro & Rubite. The descriptions and color plates are hereby provided.

MATERIALS AND METHODS

Field work was done in Mt. Egang, Barangay Mabuhay, Tandag, Surigao del Sur, Philippines, where the *Begonia* species was found. Fresh and dried herbarium samples, as well as in situ field photos, were used to describe the species. Protologues and herbarium of plants that are closely related to *B. mabuhayensis* were looked into and examined. The IUCN criteria were used to evaluate the conservation status (IUCN, 2024).

TAXONOMIC TREATMENT

Begonia mabuhayensis Blasco, Alejandro & Rubite ***sp. nov***. **Figs. 1 & S1**
section ***Baryandra***

Type: Philippines, Mindanao Island, Surigao del Sur, Tandag, Barangay Mabuhay, Mt. Egang, elevation *ca*. 60 m. asl., on a multi-layered rocky mountain. 11 May 2022 *Freddie A. Blasco 22-006* (holo PNH).

Diagnosis: *Begonia mabuhayensis* resembles *B. amparoae* Blasco, Alejandro, Tandang & Rubite (Fig. S2) in habit, with thick rhizomatous stems, thick and fleshy lamina, 4-tepaled staminate and pistillate flowers, and an ovary with unequal wings. However, it differs in having a shorter rhizome, 6 cm × 1.5–2 cm (vs. longer, 10 cm × 2.5–3 cm); glabrous oblong stipule (vs. puberulous triangular), shorter inflorescence, 57 cm. (vs. 72 cm), shorter peduncle, 49 cm. (vs. 68 cm), and a larger capsule, 20–21mm × 25–26 mm, with orbicular wings, cordate

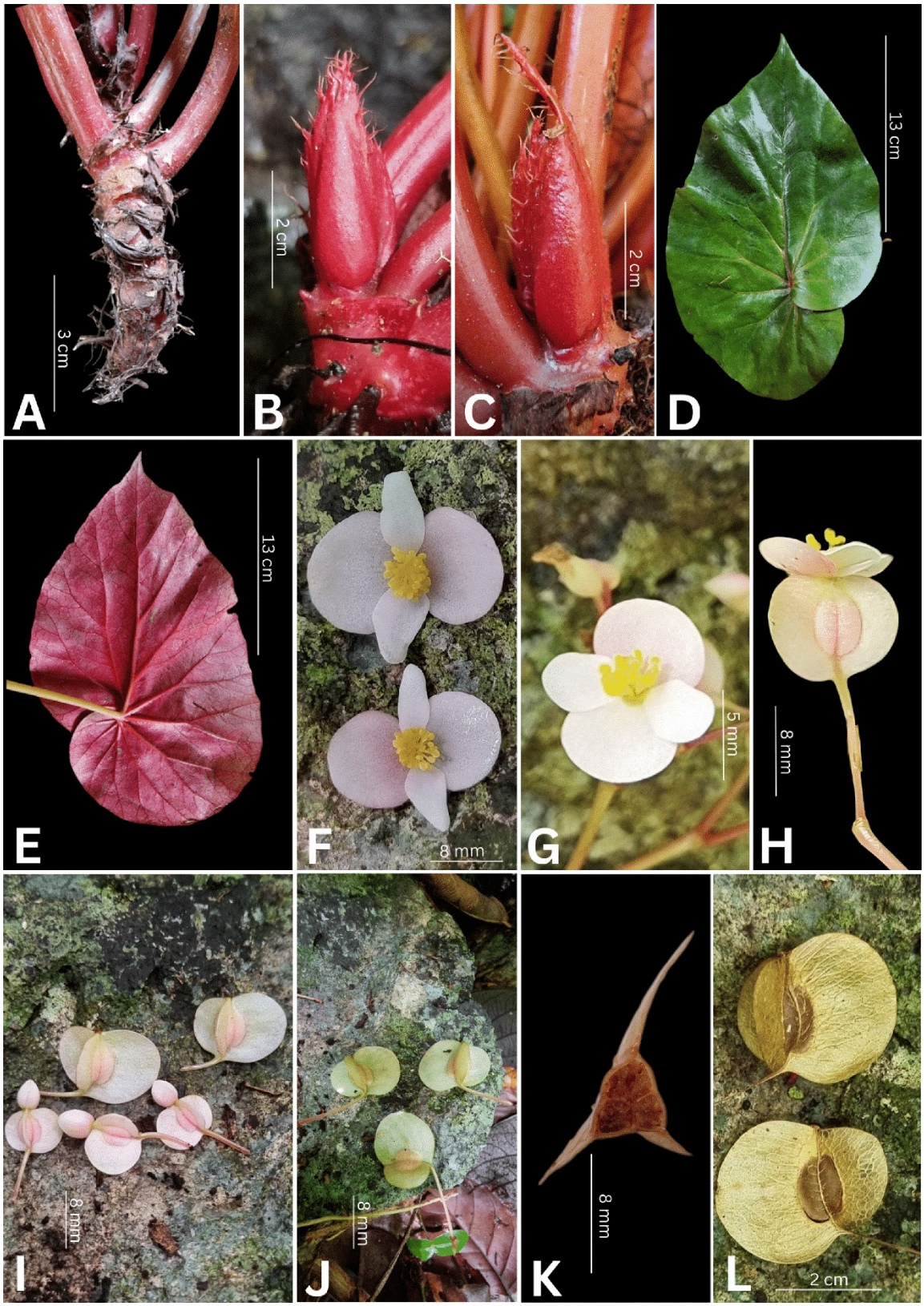

Fig. 1. ***Begonia mabuhayensis*** Blasco, Alejandro & Rubite. **A.** Rhizome, **B.** Stipule with arising arista, **C.** Stipule with full grown arista, **D.** Leaf adaxial surface, **E.** Leaf abaxial surface, **F.** Staminate flowers, **G.** Pistillate flower face view, **H.** Pistillate flower side view, **I.** Pistillate buds & mature capsules, **J.** Mature capsules (drying), **K.** Cross section of the ovary, **L.** Dried capsules. All from *Freddie A. Blasco 22–006.*

Table 1. Morphological comparison between ***Begonia mabuhayensis*** and its allied species.

Characters	*B. mabuhayensis*	*B. amparoae*	*B. tanauanensis*
Rhizome			
Length	6 cm	10 cm	**3–12.5 cm**
Diameter	1.5–2 cm	2.5–3 cm	**1.3–2 cm**
Internodes	1.5 cm	1 cm	**3.5–14 mm**
Stipule	Oblong, keel absent, Glabrous, 25–28 × 10–12 mm	Triangular, keeled, Puberulous, 22–25 × 12–15 mm	**Broadly ovate, keeled, Hairy, 20–24 × 15–17.5 mm**
Arista	10–15 mm	5–8 mm	**3–4 mm**
Petiole	Red-greenish; 33–34 cm × 10–12 mm	Red; 40–43 cm × 12–15 mm	**Pale green; 22–52 cm × 8–14 mm**
Leaf	Ovate, 26–27 ×16–17cm	Broadly ovate; 33–35 × 26–28 cm	**Oblong ovate, 21–37 × 12–23 cm**
Primary veins	*ca.* 12; Adaxially light green; Abaxially red	*ca.* 10; Dark green; Pale green	***ca.*11–13; Dark green; Pale green**
Inflorescence	Branching 2–4 times	Branching 4–6 times	**Branching 2–7 times**
Bracts	Orbicular	Broadly ovate	**Orbicular-boat shape**
	3–4 × 3–4 mm	5–6 × 4–5 mm	**17–21 × 14–16 mm**
Staminate			
Stamens	25–30	30–35	**40–44**
Pistillate			
Outer tepals	5–7 × 4–5 mm	10–11 × 8–9 mm	**11–13 ×14–15 mm**
Inner tepals	4–5 × 3–4 mm,	5–6 × 4–5 mm,	**6–9 × 3–4 mm.**
Capsule	**Globose to obovoid**	**Broadly ovate**	**Ovate**

apex and cordate base (vs. 15–17 mm × 17–19 mm, with angular wings, truncate apex and rounded base).

Description: Lithophytic, rhizomatous, monoecious perennial herb. **Rhizome** red, rhizomatous, *ca*. 6 cm × 1.5–2 cm. in diameter, glabrous, internode 1.5 cm. **Stipule** persistent, symmetric, red, oblong, 25–28 mm × 10–12 mm, adaxially and abaxially glabrous, keel consistently absent, with tiny hairs on its side, apex aristate, arista 10–15 mm. **Leaves** on curved petioles, petioles red, terete, red from the base, greenish towards the lamina, 33–34 cm long × 10–12 mm in diameter, lamina thick and fleshy, ovate, glabrous, 26–27 cm long × 16–17 cm in diameter, base cordate and overlapping, margin repand, shallowly denticulate almost entire, greenish, without bristles. apex mucronate; adaxially light green, abaxially red, venation palmate, primary veins *ca*. 12. **Inflorescence** axillary, arising directly from the rhizome, erect, *ca*. 57 cm long, dichasial chyme branching 2–4 times, peduncle(s) 1 sometimes 2, red *ca*. 49 cm long, glabrous. **Bracts** basal pairs, caducous, light pink, orbicular, glabrous, margin entire, apex sharply obtuse, 3–4 mm × 3–4 mm. **Staminate flower** pedicel 5–7 mm, glabrous, 4 tepals, pale pink to white, outer tepals broadly orbicular, 8–10 mm × 8–10 mm, inner tepals lanceolate, 5–6 × 3–4 mm; stamens 25–30, filaments *ca*. 0.2 mm, exerted; anthers yellow, obovate *ca.* 0.5 mm long, apex rounded. **Pistillate flower** pedicel 10–11 mm, glabrous; tepals 4, light pink, outer tepals broadly orbicular, 5–7 × 4–5 mm; inner tepals shallowly orbicular, 4–5 mm × 3–4 mm; ovary light pink to greenish, trigonous, globose to obovoid, glabrous 8–9 mm × 10–11 mm (wings included), 3 locular, 4–5 mm × 3–4 mm. (wings excluded), placentation axile; wings 3, unequal surrounding the ovary, pale pink to light green, abaxial wing broadly orbicular, 8–9 mm × 6–7 mm; lateral wings shallowly orbicular, 5–7 mm × 4–5 mm, styles 3, yellow, *ca.* 2 mm long, apically 2 cleft, stigmas in a curled, spirally extended band. **Capsule** nodding, trigonous, globose to obovoid, 20–21 mm × 25–26 mm. (wings included), pedicel 20–24 mm, locular part 6–7 mm × 4–5 mm (wings excluded), wings 3 unequal, abaxial wing 20–21 mm × 13–15 mm, broadly orbicular; lateral wings 14–15 mm × 7–8 mm, shallowly orbicular; apex cordate to orbicular, base cordate.

Etymology: The specific epithet *mabuhayensis* is after the name of the barangay where the plant was found.

Phenology: Observed flowering and fruiting in May (in full bloom).

Distribution and Habitat: *Begonia mabuhayensis* is endemic to the province of Surigao del Sur, Mindanao, Philippines. It grows on a multi-layered rocky mountain in Mt. Egang, Barangay Mabuhay, Tandag City, Surigao del Sur at *ca.* 60 m. asl.

Proposed Conservation Status: Only one population of *Begonia mabuhayensis* is currently known, consisting of *ca*. 200–400 individuals. The precise population size and distributional range of *B. mabuhayensis* have not yet been fully determined. Additional information is expected to emerge from further investigations in the remaining forested regions near the type site and surrounding municipalities. Therefore, following the IUCN criteria, we recommend that this new species be classified as Data Deficient [DD] (IUCN, 2024).

Notes: Among the most significant diagnostic characters of *Begonia mabuhayensis* is the absence of a keel on the stipule, which is uncommon in section *Baryandra.* Moreover, *B. mabuhayensis* superficially resembles *B. tanauanensis* Tandang, Bucay & K.F.Chung (Bucay *et al*., 2024) in having rhizomatous stem, ovate leaves with a cordate base, adaxially green surface, and a

nodding capsule with a cordate base. However, it differs by having shorter rhizomes 6 × 1.5–2 cm (vs. 3–12 cm), oblong non-keeled stipules measuring 25–28 mm × 10–12 mm with an aristate apex (vs. broadly ovate, keeled stipules 20–24 mm × 15–17.5 mm with an acuminate apex), longer arista 10–15 mm (vs. 3–4 mm), smaller lamina 26–27 cm × 16–17 cm (vs. 21–37 cm × 12–23 cm), shorter peduncle 49 cm (vs. 64 cm.) and a capsule (excluding wings) globose to obovoid (vs. ovate). Table 1 provides a detailed comparison between *B. mabuhayensis* and its allied species.

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Supplementary materials are available from Journal Website