

***Begonia sabahensis* Kiew & J.H.Tan (Begoniaceae), a New Yellow-flowered Begonia from Borneo**

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Abstract

Begonia sabahensis Kiew & J.H.Tan, (Begoniaceae) is described from Sabah, Malaysia. It belongs to sect. *Diploclinium* and is most remarkable for its pure yellow flowers.

Introduction

In 2000, Recin Sapau collected a yellow-flowered begonia from the hills behind Kampung Katabelangan, about 40 km south of Tenom, Sabah. It was planted in the Tenom Agricultural Park but never flowered so its flower colour could not be confirmed. As far as we know, this is the first record of a yellow-flowered begonia in Borneo. Most Bornean begonias have white or pink or, occasionally, orange to red flowers, the closest they come to yellow is a greenish cream colour.

To re-find this species and verify its flower colour, one of us (TJH) returned to the original site with Recin Sapau and there found a few plants. The fact that it is known only from one small population in just one locality suggests it is not a common begonia.

Begonia sabahensis* Kiew & J.H. Tan, *sp. nov.

A *Begonia calcarea* Ridl. floriis canarinis (nec tangerinis vel rubis) et majoribus differt. **Typus:** *Recin Sapau & Tan JH. AL 727/2004* 11 Feb 2004 Sungai Telekason, Tenom, Sabah, Malaysia (holo SAN).

Plant rhizomatous, hairy, hairs straight, unbranched; *c.* 2–3 mm long and dense on the young stems, stipules, petioles and veins on the lower lamina surface; on the lamina *c.* 1 mm long, very scattered on the upper surface, sparse beneath; *c.* 1 mm long and dense on the veins on the upper lamina surface; brown on the

stem; red on the young petiole and lamina, transparent on older leaves. *Stem* creeping and rooting at nodes, up to 30 cm long, c. 5 mm thick when dried, green, succulent, unbranched, nodes slightly swollen; without a tuber. *Stipules* ovate, 10–15 x c. 5 mm, margin entire, apex acuminate, soon falling. *Leaves* distant, 3–7 cm apart; petiole pink, 8–17 cm long, succulent and up to 9 mm thick in life, c. 3 mm thick when dried; lamina oblique, plain dark green, glossy above, succulent in life, thinly leathery when dried, broadly ovate, strongly asymmetric, 9–10.5 x (9–)10–12 cm, broad side 5.7–6.7 cm wide, base cordate, slightly unequal, basal lobes rounded, 2–4 cm long, margin entire, fringed with hairs 1–3 mm long, apex acuminate 5–8 mm long; veins palmate-pinnate, 2–3 pairs of secondary veins at the base with another 1–2 pairs along the midrib branching c. halfway to the margin, and 3 veins in each of the basal lobes, slightly impressed above, beneath prominent and green.

Inflorescences axillary, pink, erect, shorter than the leaves, male and female flowers on separate inflorescences. Male inflorescences c. 3.3 cm long, umbellate with 2 or 3 flowers; bracts pink, ovate, c. 4 x 3 mm, margin entire, apex setose, persistent. Bracteoles white and transparent, ovate, 2–3 mm long. Female inflorescences c. 1.5 cm long with a single flower; bracts pink, ovate, 2–3 mm long, margin entire, persistent; bracteoles white and transparent, ovate, c. 1.5 mm long. *Male flowers* with a white pedicel 15–25 mm long; tepals 4, isomorphic, canary yellow, glabrous, broadly oval, slightly narrowed to the base, margin entire, apex rounded, outer two tepals 12–14 x 9–11 mm, inner two tepals slightly smaller, 11–13 x 8–13 mm; stamens 20–23, in a lax, sessile cluster, filaments 1.5–2 mm long, anthers deep yellow, narrowly oblong, 1.5–2 mm long, apex rounded, opening by lateral slits. *Female flowers* with a pink pedicel 2–3 mm long; ovary white becoming pale yellow, 12–13 x 10–15 mm, turbinate, wings 3, equal, rounded c. 7 mm wide, locules 3, placentas bifid; tepals 5, canary yellow, glabrous, isomorphic, oval slightly narrowed to base, margin entire, apex slightly acute, 12–13 x 8–11 mm; styles 3, free, styles and stigma deep yellow, 6–8 mm long, stigmas forming a papillose spiral band. *Fruits* not known.

Distribution: Endemic in Sabah, Malaysia, known only from the type locality near the Sungai Telekosen, Tenom.

Habitat: Growing in deep shade on thick leaf litter on a steep hill slope in forest in the transition zone between hill forest and lower montane forest at 1,115 m altitude.

Notes: This new species is very distinctive, not only in its pure yellow flowers, but also in producing male and female flowers on separate, short inflorescences from the prostrate rhizome, often from the old stem from which the leaves have already fallen. The male inflorescences are umbellate, while the female



Plate 1. *Begonia sabahensis* Kiew & J.H.Tan and *Begonia calcarea* Ridl.

Begonia sabahensis. A. The plant showing the red-haired young petiole and the pure yellow flowers produced from the old stem. B. The female flowers have five tepals and the male four isomorphic tepals. *Tan J.H.*

Begonia calcarea. C. The plant showing the tufted habit, red veins on the young leaves and bristles on the upper leaf surface. D. The peachy orangey-red flowers. *R. Kiew*

inflorescences apparently produce a single flower. The leaves are broadly rounded and wider than long. The succulent petioles with dense, long red hairs are also striking. The male flowers have four isomorphic tepals. In all these characters it resembles *Begonia calcarea* Ridl., which grows on a few limestone hills around Bau, Sarawak (Ridley, 1906; Kiew and Geri, 2003). In addition, they both have brightly coloured flowers, rather than the usual white or pale pink ones.

However, *Begonia sabahensis* is distinct from *B. calcarea* in a number of characters (Table 1), the most conspicuous being flower colour. The flowers of *B. calcarea* are orangey red, in male flowers becoming deeper red toward the margin. The male and female flowers of *B. sabahensis* are pure yellow without a tinge of red, a unique feature among Bornean begonias.

Both *Begonia calcarea* and *B. sabahensis* belong to section *Diploclinium* in possessing rhizomes, male flowers with 4 tepals and ovaries with three locules each with a bifid placenta.

This fine begonia is so named because it is endemic in Sabah, Malaysia. It is apparently a rare and local begonia and, because the area is currently being logged, there is concern for its long-term survival.

Table 1. Differences between *Begonia sabahensis* and *B. calcarea*

Character	<i>Begonia sabahensis</i>	<i>Begonia calcarea</i>
Leaves	distant on the stem	tufted
Lamina width (cm)	9–12	c. 15
Lamina	not bristly above	bristly above
Vein colour on the lower surface of young leaves	green	red
Flower colour	pure yellow	orangey red
Male tepals (mm)	11–14 x 8–13	7–11 x 4–9
Stamen number	20–23	25–35
Female tepals (mm)	12–13 x 8–11	c. 6 x 7
Style length (mm)	6–8	4

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References

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Introduction

The island of Palawan (Fig. 1) has high biodiversity (Anon., 1997). It has a distinctive Bornean element to its flora resulting from the fact that it is the only part of the Philippines lying on the Sunda shelf (Whittaker, 1975) so that it has been connected with Borneo in the west in certain periods of low sea level. It has been, and still is, in many respects poorly investigated and Sleumer (1966) in his *Flora Malesiana* account of *Rhododendron* only reported three species specifically from the island, two endemics (*R. acroanthum* Merr. & Quisumbi and *R. edanoi* Merr. & Quisumbi) and one more widespread species (*R. javanicum* (Blinn.) Benn. var. *schadenbergii* (Vahl) Sleumer). Both endemics were known only from single collections — the time of his publication. Joint National Museum (Merrill) and Royal Botanic Garden Edinburgh expeditions in 1992, 1997, 1998 and 1999 have added significantly to our knowledge of the flora of the island. *R. sabahense* Argem. was described as a new endemic (Argem. 1999) and *R. acroanthum* was redefined and the description amended after being recognized as a distinct and considerably flowered (Argem. & Mollath, 1999) species. In the present paper we describe from Crater's Forest and Crater Park (Fig. 1) a species with new subspecies of *R. javanicum*, *R. javanicum* subsp. *palawanense*. This subspecies, *R. javanicum* shows great similarity with the Malayan populations of this species and *R. edanoi* is shown to be significantly distinct from *R. pinnatifidum* Sleumer of Borneo and is treated here as a separate species. *Rhododendron bagobanum* H.P. Cronq. was recorded from Mt Mantalingahan in the south of the island (Argem. *Philipp. J. Bot.* 1992: 777). Originally described from the island of Mindanao in the Philippines, this record is an



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