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## A NEW SPECIES OF BEGONIA (BEGONIACEAE) FROM SAGEA LAGOON, WEDA BAY, HALMAHERA ISLAND, NORTH MOLUCCAS INDONESIA

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### ABSTRACT

WIRIADINATA, H. 2012. A new species of *Begonia* (*Begoniaceae*) from Sagea Lagoon, Weda Bay, Halmahera Island, North Moluccas, Indonesia. *Reinwardtia* 13 (3): 263–270. — A new species of *Begonia sageaensis* Wiriadinata (*Begoniaceae*) from south of Mt. Sohra Ecoregion, Sagea Lagoon, Weda Bay, Halmahera, North Moluccas, Indonesia is described and illustrated. This species close to *B. holosericea* Teijsm. & Binn. in small herb habit but it differ in red hirsute hairs on both leaf surface and on its petiole, persistence equitant bracts, longer pedicels of male flowers and fruit has three equal wings with both flat ends.

**Keywords:** *Begonia sageaensis*, *Begoniaceae*, Halmahera, Indonesia, taxonomy.

### ABSTRAK

WIRIADINATA, H. 2012. Satu jenis baru *Begonia* (*Begoniaceae*) dari Laguna Sagea, Teluk Weda, Pulau Halmahera, Maluku Utara, Indonesia. *Reinwardtia* 13 (3): 263–270. — Satu jenis baru *Begonia sageaensis* Wiriadinata (*Begoniaceae*) dari daerah ekosistem perkapuran SelatanGunung Sohra, Laguna Sagea, Teluk Weda, Halmahera, Maluku, Indonesia di pertelakan disertai beberapa gambar. Jenis ini berbeda dengan *B. holosericea* Teijsm. & Binn. yang habitusnya terna oleh adanya bulu halus pada ke dua permukaan daun, adanya daun pelindung perbungaan jantan yang persisten dan tumpang tindih, gantilan bunga jantan yang sangat panjang serta kedua ujung sayap buah yang mendatar.

**Kata kunci:** *Begonia sageaensis*, *Begoniaceae*, Halmahera, Indonesia, taksonomi.

### INTRODUCTION

Indonesia has many species of *Begonia* especially in mountain forests of Java, Sumatra, Sulawesi and Papua. *Begonia* can also be found in many small islands such as Wawonii island, east of Kendari (the capital of South East Sulawesi), Biak, Japen and Raya Ampat islands of Papua. Celebes itself has many species of *Begonia* (Hughes, 2006; Thomas & Hughes, 2008; Thomas *et al.*, 2009 a, 2009 b); the total named that has been recorded is 36 species (Hughes, 2008). Contrary to Celebes, in Halmahera island, province of North Moluccas, which located close to Menado, especially regarding endemic species of *Begonia* are poorly known. According to Hughes, Province of Moluccas has only 5 species of *Begonia* (Hughes, 2008). After a decade, recent *Begonia* exploration conducted by Herbarium Bogoriense staff of the Indonesian Institute of Sciences (LIPI) in 2007 and found only one species, *Begonia holosericea* (Teijsm. & Binn.) Teijsm. & Binn. from Ternate. In June 2010 this species was also found in Aketajawe Lolobata National Park, Halmahera. So far no other addition

of *Begonia* collection from Halmahera (Girmansyah & Sunarti, 2011).

In August 2010 on a young karstic rock of South slope Mt. Sohra Ecoregion, close to Sagea lagoon on South Halmahera a small population of an attractive hirsute red hairs on young leaves of herbaceous *Begonia* was found. The male inflorescence has equitant bracts, the male flower has long pedicels and 2 tepals; the female flower erect and the fruit has 3 equal wings but all the tepals had been dropped out, so I could not know how many tepals of that female flower. I collected the plant and cultivated it in my garden at Bogor. After one year in cultivation, the plant produced male and female flowers. The female flower has 5 white unequal tepals. The further study on that living plant found that this *Begonia* is new to science and it is proposed here as a new species named *Begonia sageaensis* Wiriadinata *sp. nov.* It is a rhizomatous herb, with ovate leaf blades with adpressed hirsute red hairs on the both surface, permanent equitant bracts on the male inflorescence, white flowers; female flower with 5 tepals and the male with 2 tepals. The fruits has 3

equal wings, three-locular with axil, bilamellate placentae and it belongs to *Begonia* section *Petermannia* (Klotzsch, 1855, Dorenboos *et al.*, 1998). The method for *Begonia* description pattern followed description made by Kiew (Kiew, 2005).

***Begonia sageaensis*** Wiriadinata *sp. nov.* — Figs. 1–8.

*Begonia holosericea* (Teijsm. & Binn.) Teijsm. & Binn. affinis sed *Begonia sageaensis* lamina hirta rubra, pediculus masculis longioris patentis equitante bracteis, ovariae alae differt. — Type Indonesia, North Moluccas, Halmahera Island, Weda Bay, young karstic of Mt. Sohra Ecoregion foot, sagu forest edge close to Sagea Lagoon, 0° 47' 07" N. 127° 21' 26" E. 50 m asl. 14 Aug 2010. Harry Wiriadinata, HW13860 (Holotype: BO).

This species differs from *B. holosericea* (Table 1) due to adpressed red hirsute hairs on leaf surface, young leaf slightly fringed on its margin, male inflorescence with persistent equitant bracts and male flowers have long pedicels, ovary with 3 equal wings which flat at both ends, while in *B. holosericea* the upper surface of leaf glabrous, the bracts of male inflorescence not equitant and male flowers with short pedicels, wings of ovary with acute base.

*Herbaceous* plant. *Stem* rhizomatous, succulent, nodes not swollen, slender, green, than 4.5 cm long, *ca.* 8–10 mm thick. *Stipules* triangular, *ca.* 16–

25 mm × 6 mm, margin and out side midrib with white long hairs, especially near the apex. *Leaves* at internodes *ca.* 1.5–4.5 cm apart, young leaf with dense hirsute red hairs; petiole 11–20 cm long, 6–10 mm thick, green, long white hairs with violet or red base; blade ovate, slightly asymmetric, 10–14 × 11–18 cm; both surface adpressed hirsute red hairs, margin not toothed but conspicuously fringed by hairs, apex blunt; venation distinct, raised beneath, palmate-pinnate, 3–4 pairs of veins at the base, 2–3 times branching along the mid rib; slightly leathery when dried. *Female flowers* erect, single or in pairs; bracts triangular, boat shaped, midrib with white hairs, apex acuminate, margin entire, *ca.* 3 × 1 cm; pedicel *ca.* 6 cm long, pinkish white, not hair; tepals 5, white, unequal size, inner one smallest, elliptic, white, 10–13 × 5–6 mm, the largest ones obovate, 12–14 × 10–12 mm; ovary white, oblong, capsule 10 × 3 mm, with sparse adpressed red hairs, locules 3, placenta bifid; style three, one branches, stigma in a spiraled band; wings 3, equal, rounded or flat at both ends, 10 × 5 mm. *Male inflorescence* in an erect raceme with persistent equitant bracts. *Male flowers* bracts triangular, greenish white, glabrous; peduncles erect *ca.* 1.5 cm long, pinkish white; pedicels *ca.* 4–5 cm long, glabrous, pinkish; tepals 2, glabrous, white, orbicular-reniform, *ca.* 13 × 15 mm; androecium spherical, on *ca.* 1 mm column; stamens many, anthers yellow, obovate. *Fruit* erect, whitish green, 1 cm long, equal winged; wings 5 mm wide, rounded at both ends, 3 locules, placenta bifid.



Fig. 1. Morphology of living *Begonia sageaensis* Wiriadinata. Photo: H. Wiriadinata.



Fig 2. *Begonia sageaensis* in cultivation. Photo: H. Wiriadinata



Fig.3. Short pedicels of female flower (left), long pedicels of male flowers (middle) and persistent white colored equitant bracts (right). Photo: H. Wiriadinata.



Fig. 4. Male flower. Photo: H. Wiriadinata.



Fig. 5. Female flower (open) and male flower (in bud). Photo: H. Wiriadinata.



Fig. 6. Female flower. Photo: H. Wiriadinata.



Fig. 7. Female flower with 3 locules and dichotomous placenta. Photo: H. Wiriadinata.



Fig. 8. Herbarium specimen. Photo: H. Wiradinata.



Table 1. Comparative characters between *Begonia sageaensis* and *Begonia holosericea*

Characters	<i>Begonia sageaensis</i>	<i>Begonia helosericea</i>
<b>Leaf</b>		
Peduncle	green, hirsute 11-20 cm long	pinkish green, densely hirsute 10-11 cm long
Blade	ovate	ovate
basal leaf	overlapped	not or shortly overlapped
upper surface	appressed red hairs	glabrous
<b>Female flower</b>	single, erect	single, erect
Tepals	5, unequal	5, unequal
Ovary	finely white hairs	densely erect red hirsute
<b>Male inflorescences</b>		
Peduncle	glabrous, 1 cm long	hairy, 2.5-3 cm long
Bracts	equitant, long persistent	not equitant, short persistent
Pedicels	4.5-5 cm long, glabrous, pinkish	1.5-2 cm long glabrescens, pinkish white
Tepals	2, white, outside glabrous ca. 14 x 15 mm	2, white, outside poorly appressed red hairs ca. 13 x 15 mm
<b>Fruit</b>		
Wings	equal	equal
Placenta	bifid	bifid

**Distribution.** Endemic to Halmahera Island

**Habitat.** In forest margin, on a small rocks of young karstic of Mt. Sohra Ecoregion close to Sagea lagoon at about 50 m asl.

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**ERRATUM****REINWARDTIA Vol. 13, Part 2, 2010**

1. Please change the existing word in p. 213, LINE 7 on ABSTRAK (written in Bahasa Indonesia version) with the following:

Keberadaan dua jenis terakhir melampaui distribusi yang sebelumnya hanya diketahui di **barat** garis Wallace.

2. Please change the existing epithet name in p, 214, COLUMN 1, LINE 40 on Key to the species of *Marantaceae* in Sulawesi number 5.a. after *Phrynium*:

.....*longispicum*

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Two printed copies (on A4 paper) of the manuscript of not more than 200 pages together with an electronic copy prepared on Word Processor computer program using Time New Romance letter type and saved in Rich Text File must be submitted.

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Map, line drawing illustration, or photograph preferably should be prepared in landscape presentation to occupy two columns. Illustration must be submitted as original art accompanying, but separated from the manuscript. On electronic copy, the illustration should be saved in jpg or gif format at least 350 pixels. Legends or illustration must be submitted separately at the end of the manuscript.

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