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***Dendrobium moiorum* (Orchidaceae: Epidendroideae), a new species of *Dendrobium* section *Diplocaulobium* from West Papua, Indonesia**

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Abstract

Dendrobium moiorum Saputra, Schuit., Wanma & Naive (Orchidaceae; Epidendroideae; Dendrobieae), a new endemic species from West Papua, Indonesia, is described and illustrated. The new species resembles *Dendrobium isthmiferum* and the diagnostic differences are discussed. Information on distribution, ecology, phenology and conservation status are provided.

Keywords: endemic, Papuasia, taxonomy, Sorong Nature Recreation Park

Introduction

Described by Swartz (1799: 82), *Dendrobium* belongs to the tribe Malaxideae, subtribe Dendrobiinae (Chase et al., 2015), and is the second largest orchid genus encompassing about 1600–1800 species. This genus consists of epiphytic, occasionally lithophytic or rarely terrestrial herbs distributed from Sri Lanka throughout tropical Asia and the Pacific region, north to Japan, east to Tahiti and south to New Zealand (Schuiteman & Adams, 2014; Ormerod, 2017). According to Ormerod & Juswara (2019), the number of species belonging to the genus *Dendrobium* in Indonesia is uncertain but is probably around 800 species and many undoubtedly still await discovery.

Material of a *Dendrobium* species easily identified as a member of section *Diplocaulobium* Reichenbach (1876: 112), because of its bottle-shaped, unifoliate pseudobulbs and ephemeral, white flowers with narrow, pointed sepals and petals. The specimen was collected from the pristine tropical forest of Sorong Nature Recreation Park, Birds Head Peninsula in Indonesia during the first author's botanical excursion there in February 2019. After a thorough examination of its morphology and comparison with protologues and actual and digitized type specimens of the genus *Dendrobium* from Indonesia and neighboring countries, it appeared that the specimens did not match any known species. We here describe it as a species new to science.

Materials and methods

The measurements and descriptions are based on fresh, dried, and spirit material. Descriptive terminology follows Beentje (2016). Flowers were preserved in 70% ethanol for microscopic examination. Original material of *Dendrobium* sect. *Diplocaulobium* from Indonesia and neighboring countries was examined from different herbaria, mainly through high-resolution images accessed at <https://plants.jstor.org/> as well as at the Orchids of New Guinea website accessed at <http://www.orchidsnewguinea.com>.

Taxonomic Treatment

Dendrobium moiorum Saputra, Schuit., Wanma & Naive, *sp. nov.* Fig. 1 and 2

Type:—INDONESIA. West Papua: Sorong City, Sorong Nature Recreation Park, elev. 100 m, 9 February 2019, Reza 303 (holotype: MAN!, spirit; isotypes: BO!, dried specimen, KRB!, spirit).

Diagnosis:—*Dendrobium moiorum* is similar to *Dendrobium isthmiferum* J.J.Sm. (Smith, 1935: 41), e.g., in the papillose patch on the mid-lobe between the two undulating keels, but differs in the rectangular, not cuneate, claw of the mid-lobe with strongly undulate margins, the much larger flowers (lip similar in length but sepals almost twice as long as in *D. isthmiferum*), larger leaves (13–23.5 cm versus 6.8–10 cm long), and the absence of red or purple markings on the lip, which is unusual in sect. *Diplocaulobium*.

Epiphytic, sympodial herb. **Roots** white to brown, up to 10 cm long, ca. 2 mm in diameter, stiff, unbranched. **Rhizome** very short, creeping, sometimes branched, covered by deciduous, dull yellow to brown scales. **Pseudobulb** clustered, erect, bottle-shaped, 15.0–35.5 × 1.6 (at the base) to 0.3 (near the apex) cm, green to olive green, widened at the base, tapering towards the apex, sulcate, stem-like, covered by deciduous dull yellow-brown bracts at the base, unifoliate. **Leaves** erect, elliptic to lanceolate, rarely oblanceolate, 13.0–23.5 × 3.3–4.0 cm, coriaceous, glabrous, adaxially dark green, shiny, abaxially bright green, base cuneate to attenuate, margin entire, apex emarginate or unequally bilobed. **Inflorescence** arising from the apex of the pseudobulb, 1-flowered, singly or sometimes in pairs, nodding; **peduncle** 2.0–2.3 cm long, terete, glabrous; **spathe** formed by 3 scale-leaves, ovate to triangular, ca. 3.5 × 0.7 cm wide (1.4 cm wide when flattened), dull yellow to brown, papery, glabrous, margin entire, apex acute. **Pedicel-with-ovary** clavate, slightly curved, up to 9 cm long, terete, ovary not distinct, glabrous, pale green. **Flowers** up to 8 cm across (petal and sepal in natural position), up to 9 cm across when expanded, ephemeral. **Dorsal sepal** erect, ovate-triangular in basal part, narrowly linear in apical part, 6.1–6.4 × 0.4–0.5 cm, tapering, glabrous, white in the lower half, pale yellow towards apex, margin entire, apex slightly twisted, caudate, cucullate. **Lateral sepals** spreading, slight obliquely triangular in basal part, narrowly linear in apical part, falcate, 5.4–6.4 × 0.5–0.6 cm, tapering, glabrous, white in the lower half, pale yellow towards apex, margin entire, apex slightly twisted, caudate, cucullate. **Petals** narrowly ovate in basal part, linear in apical part, slightly falcate, 5.1–5.4 × 0.25–0.26 cm, tapering, glabrous, white in the lower half, pale yellow towards apex, margin entire, apex slightly twisted, caudate, cucullate. **Labellum** porrect from a suberect base, reclinate, pandurate, ca. 13.2–13.5 × 5–7 mm when flattened, 3-lobed, cuneate at base, with two parallel keels extending from the base of the lip to about halfway the mid-lobe, the keels straight between the lateral lobes and undulate on the mid-lobe; **side lobes** erect, rounded, sinuate, 2.0–3.3 mm long, glabrous, creamy white to yellowish white; **mid-lobe** spatulate, 4.5–5.5 mm long, clawed, claw almost rectangular, with two parallel undulate keels extending from the base to just below the blade, disc minutely papillose between the undulate keels, bright yellow, margin strongly undulate, apex rounded, margin sinuate, creamy white to pale yellow; **mentum** 4.5 mm long, obtuse. **Column** ca. 5 mm long, obtuse; **anther** pale yellow, rectangular-rounded, cucullate, in front minutely fimbriate and with a short, subulate projection on either side; **pollinia** 4, narrowly ovoid, 1.5–1.6 × 0.4–0.6 mm, dull yellow-brown, arranged in two pairs. **Fruit** not seen.

Distribution:—Indonesian New Guinea, Bird's Head Peninsula. Only known from the type locality.

Habitat and Ecology:—Lowland rainforest at ca. 100 m a.s.l. in shaded and semi-open places without direct sunlight.

Phenology:—Observed flowering in February and July–September.

Etymology:—The specific epithet *moiorum* refers to a local tribe in Sorong, West Papua, the Moi, who protect the Sorong Nature Recreation Park forest and first brought this species to our attention.

Conservation status:—During field surveys in one year, we only found 11 individuals in two populations. The distribution of this species as presently known is very narrow, with an estimated population size of fewer than 1000 individuals. Despite Sorong Nature Recreation Park being a protected forest (conservation forest), the habitat of this species is prone to the effects of anthropogenic activities such as site disturbance, habitat fragmentation, and village expansion. According to the Red List criteria of the IUCN (2019), we assess this species as Vulnerable (VU C2a(i); D2).

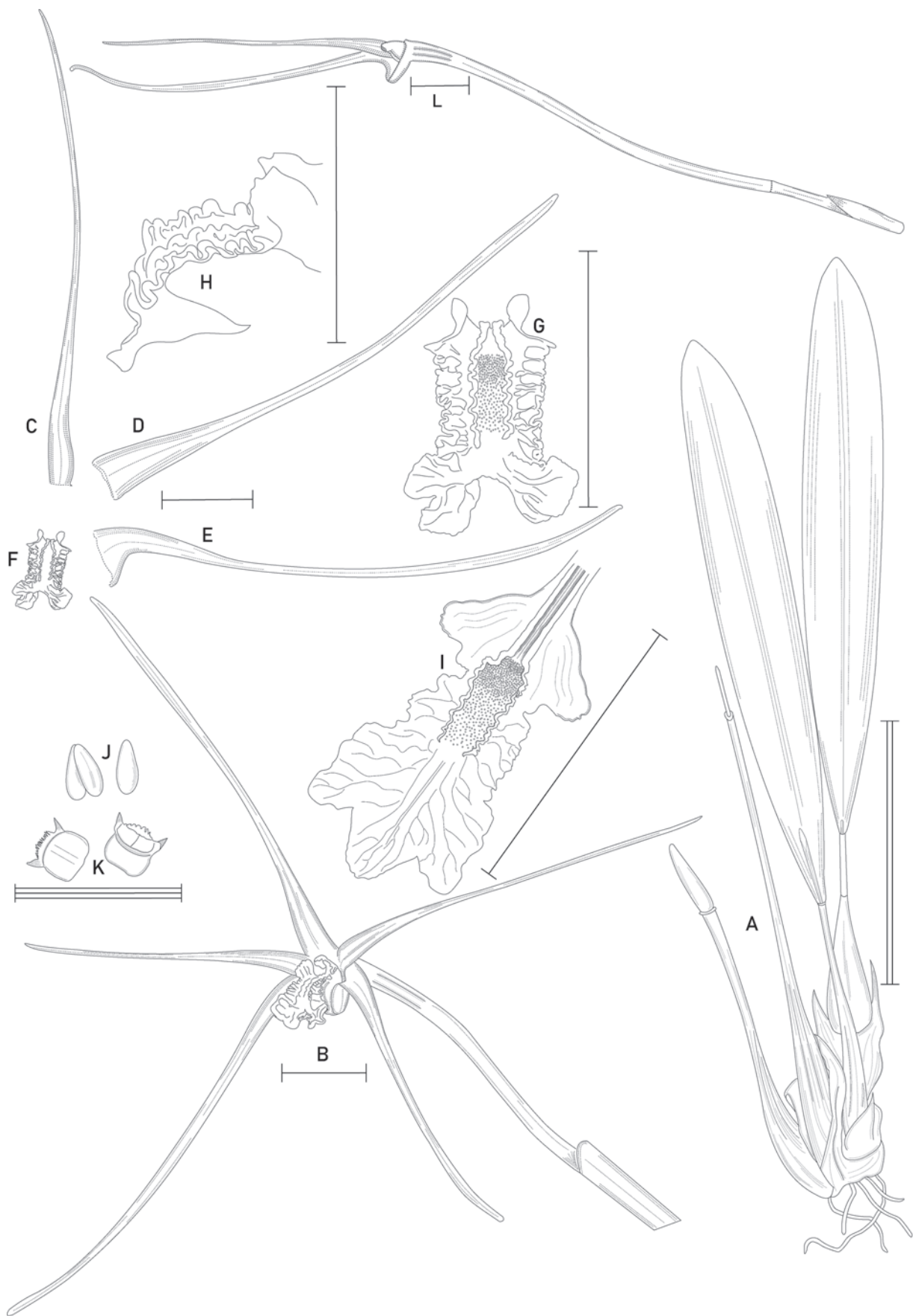


FIGURE 1. *Dendrobium moiorum* A. Habit. B. Flower. C. Petal. D. Dorsal sepal. E. Lateral sepal. F–I. Lip. J. Pollinia. K. Anther. L. Pedicel with ovary. Scale bar, single line=1 cm, double lines=5 cm, triple lines=5 mm. Drawn from the type by Reza Saputra.

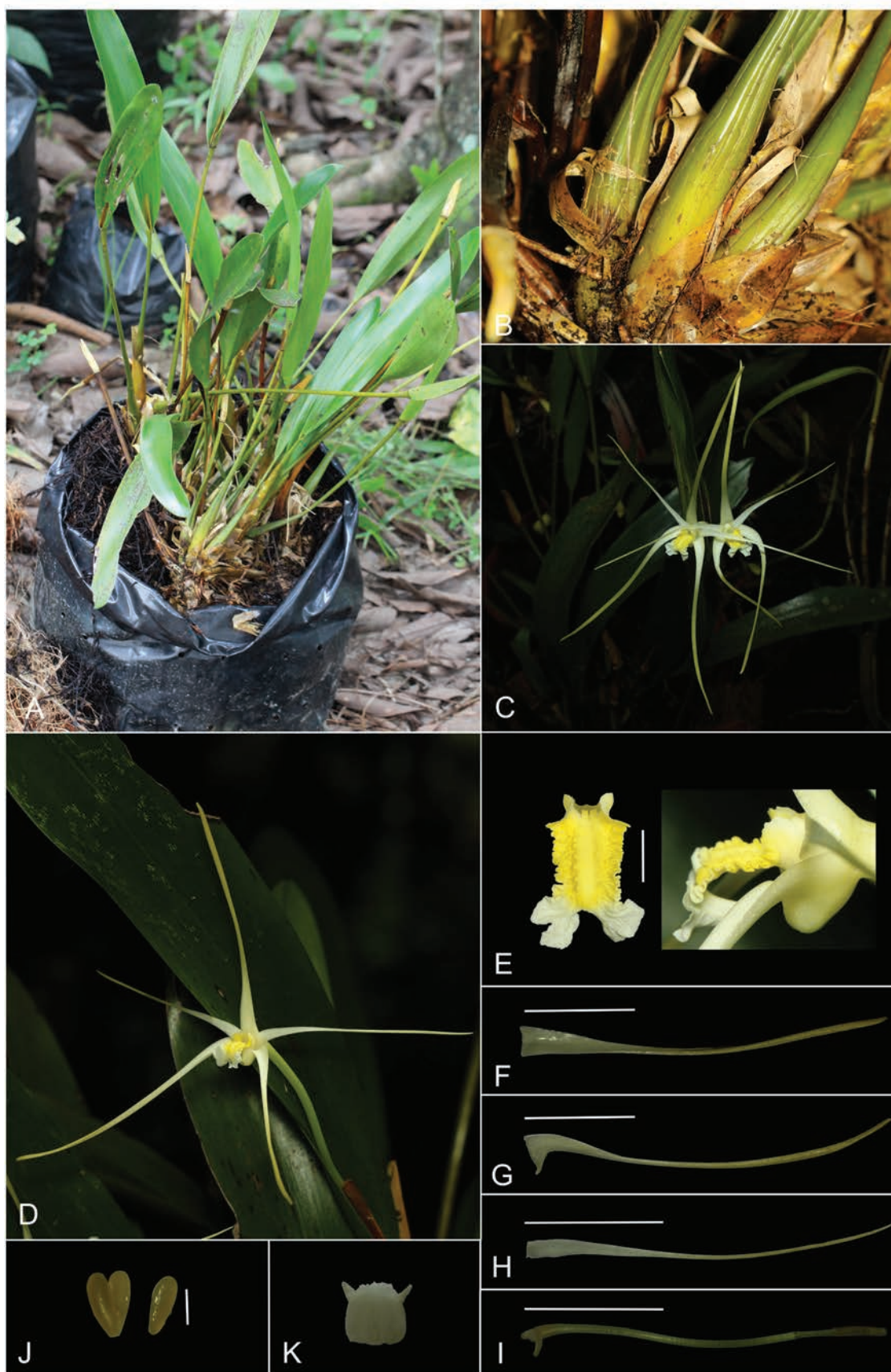


FIGURE 2. *Dendrobium moiorum*. A. Habit. B. Detail of pseudobulbs. C. Inflorescence. D. Flower. E. Detail of labellum (Front view & Profile view), scale bar: 2 mm. F. Dorsal sepal, scale bar: 2 cm. G. Lateral sepal, scale bar: 2 cm. H. Petal, scale bar: 2 cm. I. Pedicel with ovary, scale bar: 5 cm. J. Pollinia, scale bar: 1 mm. K. Anther. Photos by Reza Saputra.

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