

***Dendrobium crocatum* Hook.F. (ORCHIDACEAE): A NEWLY RECORDED SPECIES IN INDONESIA**

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ABSTRACT

A newly recorded species, *Dendrobium crocatum* Hook.f., in Indonesia is described and illustrated. This species was described in 1890 and it was restricted to Peninsular Malaysia and southern part of Thailand. Since described for the first time, there is never any records about this orchid discovery outside from these areas. But on March 2010, several living specimens of this species was recently found in Indonesia, precisely in the lowland forest of Siberut island – western part of Sumatra island. But so far, there was no evidence for the existence of this species in Sumatra island, although Sumatra is a large geographical spans which became separator between Peninsular Malaysia to the Siberut island. Although Siberut's specimen morphology is not too far with Malaysian specimen, but there is slightly difference on the floral color. The taxonomic treatment, morphological descriptions, photographs and notes of the species are given here. A key to distinguish it from the other closely related Sumatran Calcarifera's *Dendrobium* is also provided.

Key words: *Dendrobium crocatum*, Indonesia

INTRODUCTION

Dendrobium with about 1000 species, is one of the largest genera in Orchidaceae. Species of *Dendrobium* are found throughout the western Pacific and East Asian regions, from as far north as Japan to as far south as Tasmania and southern New Zealand (Lavarack *et al.*, 2000). Because of the large genus member, so it must be divided into several section to make easier in identification. Section Calcarifera was proposed by J.J. Smith in 1908. Comber (2001) provide the translation of Smith's Latin diagnosis, approximately reads thus: "this section differs from Pedilonum by having a larger, wider, often more or less undulating lip which is keeled. On the claw of the lip there is a tooth protruding into the spur". *Dendrobium crocatum* is a member of Calcarifera section which has distribution restricted in lowland forest of Southern Thailand to Peninsular Malaysia. In early 2010, an expedition in Siberut island was success to collect several living specimens of *Dendrobium* from Calcarifera section which found grow hanging on tree trunks and branches along the riverbank. Short time after arrived in Purwodadi Botanical Garden, they give a perfect blooming. Several flower has been observed and the result show if this specimens obviously known as *Dendrobium crocatum*. This discovery will increasingly the diversity of Indonesian orchids, because this species has never previously recorded from Indonesia. The objective of this is to observe a new record specimen of *Dendrobium crocatum* from Siberut island (morphological approach), and to discuss their differences compared with specimen from Peninsular Malaysia.

MATERIALS AND METHODS

This research used living and spirit specimens of *Dendrobium crocatum* from Siberut and a single specimen from Peninsular Malaysia as comparison object. We also used O'Byrne (2006) line drawing (DX621; P.O'Byrne; 15.5.2006) to identifying *Dendrobium crocatum* characteristics from Peninsular Malaysia. Flower specimens dissected into several main parts, then drawing them into a complete line drawing (diagram). After that, all parts described systematically including on colour variation. Sepals, petals and labellum are described on the flat shape condition. Specimens that had been used was kept as a spirit collection.

RESULTS

***Dendrobium crocatum* Hook.f.**

Homotypic synonyms:

Callista crocata (Hook.f.) Kuntze
Pedilonum crocatum (Hook.f.) Brieger
Eurycaulis crocatus (Hook.f.) M.A.Clem

Heterotypic Synonyms:

Dendrobium pyropum Ridl.
Pedilonum pyropum (Ridl.) Rauschert

Source: Govaert *et al.* (2010).

***Dendrobium crocatum* from Siberut Island**

Specimen observed: RIO 165, RIO 175 (Ugai, Siberut island), RIO 147 (Madobag, Siberut Selatan).

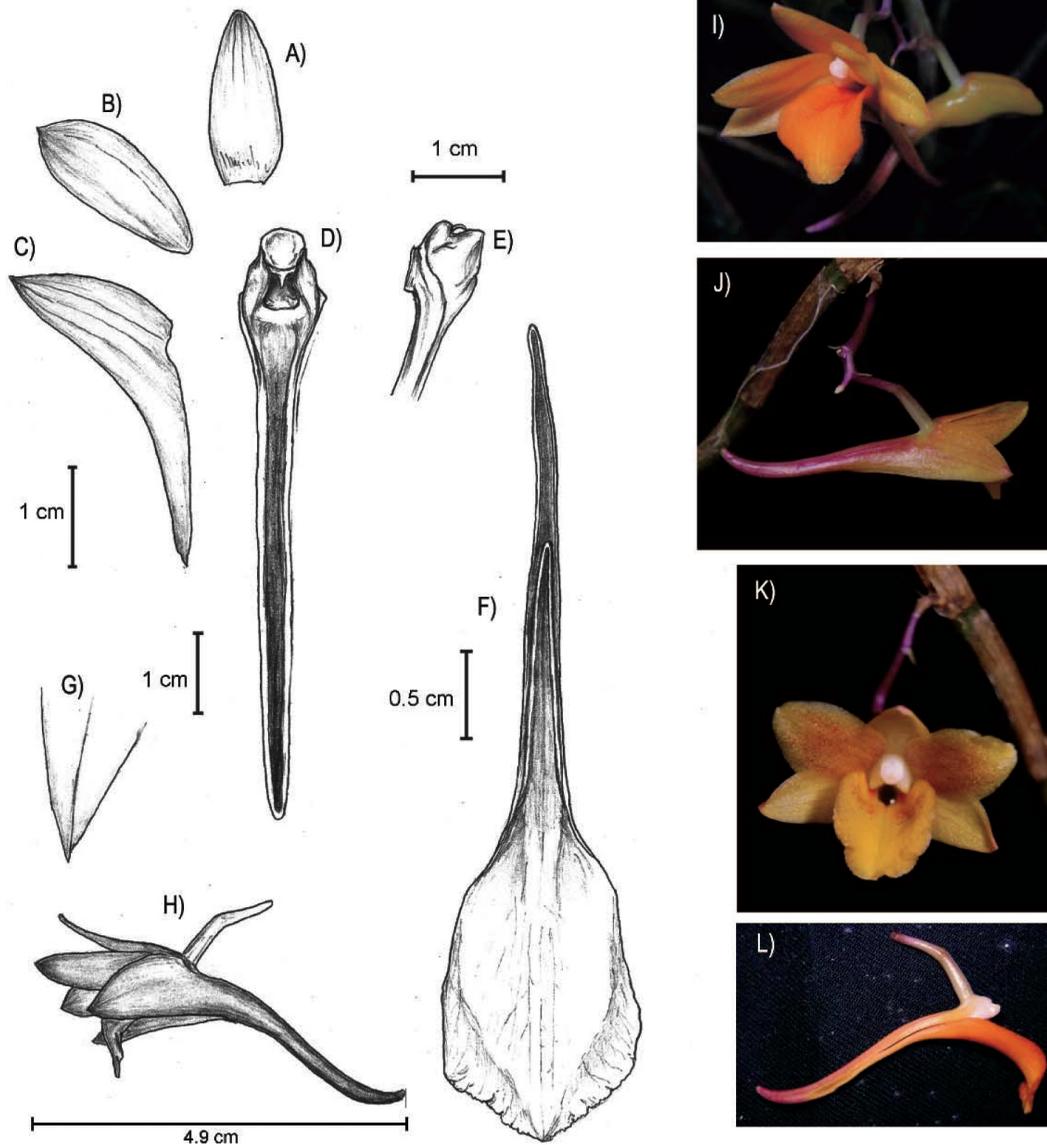
Epiphytic herb. *Rhizome* creeping, branching. *Stems* clustered, up to 44 cm long, spreading, erect to arching, unbranched, terete; internodes 3–3,7 cm long, 0,3–0,4 cm in diameter, terete, green when young, becoming dark green later, longitudinally sulcate when mature. *Leaves* deciduous, 5,7–10,5 × 2–2,3 cm, elliptic to lanceolate, tapering to an obliquely acute unequally bilobed apex, margins slightly undulate, thin-textured, mid-nerve prominent on abaxial surface, green; sheaths 2,5–3,2

cm long, tightly encircling stem, cylindrical, green, soon turning dirty white, persistent. *Inflorescence* a pendulous raceme, lateral from nodes near apex of leafless stem, 5 cm long, 4–4,5 cm in diameter, 1- to 4-flowered, the flowers facing outwards in all directions; peduncle 1,5–2,2 cm long, 1–1,5 mm in diameter, cylindrical, purple-red; floral bracts 2,5–3 mm long, triangular, acute. *Flowers* 4,4–5 cm long, 2,2–2,4 cm wide, waxy, light yellow, dorsal sepal and petals with longitudinal purple red streaks on outer

***Dendrobium crocatum* Hk.f.**

Section Calcarifera

RIO 165 - Ugai, Siberut Selatan, Mentawai Islands



A) dorsal sepal; B) petals; C) lateral sepals; D) column and column foot; E) column (side view); F) labellum; G) leaf apex; H) flower (side view); I) inflorescence; J) another variation in mentum shape (side view); K) flower (front view); L) column and labellum (side view).

*line drawing by Destario M (2010)

Figure 1. Line drawing of *Dendrobium crocatum* from Siberut



Figure 2. Distribution map of *D. crocatum*



Figure 3. *D. crocatum* plant on their natural habitat



Figure 4. Malaysian specimen



Figure 5. Siberut's specimen

surface, mentum faintly suffused purple-red especially near the apex, lip light orange with minutely red dots near the midlobe base, column white, anther-cap whitish cream; lasting for 4–6 days. *Pedicel-with-ovary* 1,3–1,4 cm long, slender, cylindrical, ovary slightly decurved at base, sulcate, creamy green with purple-red streaks. *Dorsal sepal* suberect, 1,6–1,7 × 0,7–0,8 cm, ovate, margins entire, apex obtuse. *Lateral sepals* horizontally not widely spreading, in total 3–3,1 cm long; free part 1,6–1,75 × 0,7–0,75 cm, oblong, distal half tapering to sub-acute or slightly acuminate apex; extended basal part 1,5–1,65 cm long, slightly falcate, the outer margins at base fused under lip for 1,5–1,7 cm, forming a mentum. *Mentum* almost at right angles to ovary, 2,9–3,1 cm long, cylindrical with a distinct dorsal ridge, slightly decurved “S” shape and apex obtuse and slightly compressed. *Petal* not widely spreading, 1,7–1,9 × 0,6–0,75 cm, elliptic to obovate, margins entire, apex slightly acuminate. *Lip* appressed against column-

foot with mid-lobe horizontally, long-clawed at base, not 3-lobed, 4,5–4,7 cm long in total; claw 2,9–3 cm long, fused to column-foot along margins for about 1,7–1,8 cm, canaliculate, gradually broadening from 1 mm wide at base to 5 mm near the apex where it extends a short distance on to the lip lamina; epichile descending, 1,6–1,7 × 1,1–1,2 cm, obovate to almost rectangular, apex obtuse, margins apex irregular erose. *Column* porrect, 0,5 × 0,5 cm, stout; stelidia large, triangular, obtuse, margins entire; stigma, trapezoid; foot 3–3,1 cm long, linear, deeply grooved along median, tip decurved; anther-cap 0,3 × 0,2 cm, cucullate, almost circular; pollinia in 2 pairs, 1,5 mm long, comma-shaped, yellow. Description made from living and spirit specimens

Notes

Distribution. Indonesia, Siberut island, Ugai and Madobag. *Habitat and ecology.* Lowland forest along the riverbank. *Phenology.* Flowering recorded in May and July in cultivation at Purwodadi Botanical Garden, East Java. *Cultivation.* *Dendrobium crocatum* can be grown in pots using a standard *Dendrobium* potting medium with some moss covering the surface, good air circulation and a light intensity of 50–70%, with sufficient water to prevent drying out of the media. The plants are susceptible to attack by mites, causing the leaves to drop off.

DISCUSSION

So far, Siberut island recorded has 11 species of *Dendrobium*, they are *D.concinnum*, *D.crumenatum*, *D.flexile*, *D.indivisum*, *D.lamellatum*, *D.leonis*, *D.lobii*, *D.hymenanthum* (*syn. D.quadrangulare*), *D.secundum*, *D.spurium*, and *D.subulatum* (Yunaidi and Nurainas, 2004). But all of this species are also have distribution in Sumatra island (Comber, 2001). No one of *Dendrobium* from Calcarifera section has been recorded before from Siberut Island. Because of that, discovery of *Dendrobium crocatum* in Siberut will be a new record for Siberut Island, and also for Indonesia. Before this discovery, there is no evidence for *D.crocatum* presence in every part of Indonesia's islands, especially in Sumatera as the nearest main island. It will be little unique case when we found any *Calcarifera* section in Siberut but it seems not recorded in Sumatera, which known as a speciation center for *Calcarifera* section, where 29 species are known and 20 of which are endemic (Comber, 2001). Before this discovery, *Dendrobium crocatum* just recorded from two place, Peninsular Malaysia and Thailand

(Seidenfaden and Wood, 1992).

There is no significant differences between Malaysian and Siberut's specimen. Just a little differences as a variation appear on their morphology and their colour. Siberut's plant has brighter and faded tepals colour, while Malaysian plant usually has deep orange or darker. From morphology aspect, Siberut's plant sometime has more narrower dorsal sepal or slightly acuminate petals, although this characters is not occur in every specimens. Population in Siberut seems has more wide variation range which need to observed deeply.

Two closely related Sumatran Calcarifera's *Dendrobium* to compare with *D.crocatum* are *D.ventrilabium* and *D.lampongense*. A key identification to distinguish it from the other closely related Sumatran Calcarifera's *Dendrobium*.

1. Lip lamina is distinctly broader than its length*D. ventrilabium*
1. Lip lamina is longer than its width2
2. The length of pedicel and ovary reach more than 70 % of the mentum length; mentum bilaterally slightly flattened apex.....*D. lampongense*
2. The length of pedicel and ovary about or less than 50% of the mentum length; mentum apex cylindrical and narrow.....*D. crocatum*

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