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THE ORCHID GENUS *DILOCHIA* IN INDONESIA

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ABSTRACT

SULISTIARINI, D. 2012. The orchids genus *Dilochia* in Indonesia. *Reinwardtia* 13(4): 379-387. — Five species of *Dilochia* (*D. cantleyi*, *D. longilabris*, *D. parviflora*, *D. rigida* and *D. wallichii*) have been recognized in Indonesia. One species from Sumatra is proposed as new species. Descriptions and identification key to all species based on morphological characters are presented.

Keywords: Orchid, *Dilochia*, Indonesia, new species.

ABSTRAK

SULISTIARINI, D. 2012. Anggrek marga *Dilochia* di Indonesia. *Reinwardtia* 13(4): 379-387. — Marga *Dilochia* di Indonesia diwakili oleh lima jenis (*D. cantleyi*, *D. longilabris*, *D. parviflora*, *D. rigida* dan *D. wallichii*). Satu jenis baru dari Sumatera diusulkan. Pertelaan, kunci identifikasi jenis berdasarkan ciri-ciri morfologinya serta daftar spesimen herbarium yang diperiksa disertakan.

Kata kunci: Anggrek, *Dilochia*, Indonesia, jenis baru.

INTRODUCTION

Orchid is one of flowering plants which have high species diversity. According to O'Byrne (1994) there are about 17.000 to 35.000 orchid species belong to 750 to 850 genera listed in the world. Approximately 6.000 species are expected to occur in Indonesia (Vogel, 1988).

Dilochia Lindl. is a small genus in the *Orchidaceae*, included one of the terrestrial or epiphyte orchid which is grown in monopodial type, stem vigorous, green colored, unpseudobulb, leaves ovate, enlarge and stiff. The genus was established by Lindley (1830) based on Wallich Catalogue number 1952 from Singapore. According to some available references, at least 7 species of *Dilochia* were distributed in Southeast Asia region (Comber, 1990; 2001; Seidenfaden & Wood, 1992; Wood *et al.*, 1993). The Kew World Checklist of Selected Families reported 8 species of *Dilochia* of which 7 species are from Southeast Asia and one from Myanmar. In Indonesia the genus *Dilochia* was known from several island. Comber (1999, 2000) recognizes one species in Java (*D. wallichii*) and 2 species in Sumatra (*D. cantleyi* and *D. wallichii*). Whereas Wood *et al.* (1993) reported 4 species present in Borneo (*D. cantleyi*, *D. parviflora*, *D. rigida* and *D. wallichii*).

Formerly this genus was grouped into the genus *Arundina*, two of those species *D. cantleyi* and *D. wallichii* were named as *A. cantleyi* and *A. wal-*

lichii by Hooker (1890). However Thomas (1992) distinguished these two genera based on the fruits. *Dilochia* has globose fruits and *Arundina* has elongate fruits.

Recent study, based on herbarium specimens (BO) indicated that the two genera have similar lip but differ in number of keel. *Arundina* has 3 keels where as *Dilochia* has 5 keels. So far a detailed study on the genus *Dilochia* is still limited, therefore the study is conducted to understand how many species of this orchid occur in Indonesia.

MATERIALS AND METHODS

The materials for examination were the orchid herbarium specimens stored in the Herbarium Bogoriense (BO) for both dried and wet collection. For this research, the methods adopted de Vogel (1987). Firstly, all available specimens are performed as unidentified species, then the specimens were grouping according to the taxonomic similarity; each group was then provided with an analytical description using the strongest characteristic for a diagnostic of the group. In order to understand their taxon status, the characteristic of each group was compared to earlier available description of *Dilochia*. Some information such as distribution, ecology, habitat, altitude and collector's notes from each specimen were recorded. Based on those data, the identification key to the species and the descriptions can be provided.

TAXONOMIC TREATMENT

DILOCHIA Lindl.

Dilochia Lindl., Gen. et Sp. Orch.: 38. 1830; Ridley, Orch. & Apost. Mai. Pen.: 332. 1896; J. J. Smith, Orch. Jav.: 231. 1905; C. A. Backer, Bekn. Fl. Jav. Orch. I: 151. 1952; C. A. Backer, Fl. Jav.: 292. 1968; J. B. Comber, Orch. Jav.: 88. 1990; G. Seidenfaden & J. J. Wood, Orch. Mai. Pen. & Sing.: 148. 1992. — Type: *Dilochia wallichii* Lindl. ex Wall, (holo SING).

Plants terrestrial or epiphytes, glabrous, except in some species the bracts inside hairy. *Stems* erect, terete, covered with leaf sheaths, lowers ones without a developed blade. *Leaves* alternate, herbaceous or papyraceous; leaf sheath not swollen, tubular around the stem. *Leaf blade* articulate with the sheath; base petiole-like, clasping the stem, broadly sessile; curvinerved or nerves parallel, all fine, rarely indistinct. *Raceme* few-branched or panicle, terminal. Peduncle often enclosed by sterile bracts.

Rachis erect, straight. Floral bracts patent, boat-shaped; inside with or without hair-like processes. *Flowers* resupinate, distichous, rather closed, in most species opening simultans. Pedicel twisted, in section triangular. Sepals free, the median slightly different from the sepals, all nerves equal. Lip boat-shaped, about parallel to the column, with lateral lobes, 3-lobes, in side with keels. Hypochilium broadly sessile. Epichilium recurved, broadly attached to the hypochilium; margin undulates. Column slender, in front view club shape, widened or slightly widened at the top, front margin fleshy or wing-like; column foot absent or present. Anther heart-shaped. Polinia 8 in 2 groups.

Distribution. South-east Asia from Thailand, Peninsular Malaysia through Indonesia to the Philippines and New Guinea.

So far there are 6 species of *Dilochia* in Indonesia one of them is expected as new species. Identification key to the six species recorded in this study as follows:

1 a.	Leaves linear-elliptic, less than 1 cm wide. Flowers 5 or less, in a short condensed inflorescence.....	<i>D. rigida</i>
b.	Leaves narrowly ovate to ovate, more than 2 cm wide. Flowers more than 7, in an elongated inflorescence.....	2
2 a.	Column foot distinctly developed. Epichilium 1.5-3 mm long.....	<i>D. parviflora</i>
b.	Column foot not present. Epichilium more than 5 mm long.....	3
3 a.	Column laterally with fleshy, somewhat swollen margins. Keels in the back of the hypochilium ca. 2 mm high, in the front part of the hypochilium descending to ca. 1 mm high.....	<i>D. carnosa</i>
b.	Column laterally with thin, wing-like margins, especially to the top. Keels in the back of the hypochilium less than 1.5 m high, in the front part of the hypochilium descending to less than or up to 0.5 mm high.....	4
4 a.	Epichilium about rectangular, 9-12 mm long, about as long as or longer than the hypochilium.....	<i>D. longilabris</i>
b.	Epichilium about rhomboid, up to 7 mm long, shorter than the hypochilium.....	5
5 a.	Floral bracts about two times as long as wide when flattened, 19-25 by 6-10 mm. Top acuminate. Keels in the back of the hypochilium high plate-like, with about straight or undulating margin, but never irregularly.....	<i>D. wallichii</i>
b.	Floral bracts about as wide as long, flattened, 5-17 by 8-14 mm, top acute. Keels in the back of the hypochilium about as wide or wider than high with irregular warty margin.....	<i>D. cantleyi</i>

1. *DILOCHIA CANTLEYI* (Hook, f.) Ridl, Journ. Linn. Soc. XXXII (1896):332; J. J. Sm., Enum. Orch. Sumatra (1933):186; Carr., Gard. Bull. Sing. (1938) 8:237; Hender., Mai. Wild. Fl. (1954):54; Holtt., Fl. Malaya (1964):190. - *Arundina cantleyi* Hook, f., Fl. Brit. Ind. (1890) 5: 858. - Type: Malay Peninsula Perak, G. Bubu, alt. 4500-5400 ft., Cantley, Wray. (n.v.)

Plant over 60 cm long. *Leafsheath* appressed, free part 0.7-1.5 cm long, rather smooth, laterally with few raised nerves. *Leafblade* narrowly ovate to ovate, 2.7-14 by 1-2.6 cm; petiole-like base, *ca.* 0.5 mm long; top acute to acuminate. *Panicle* 1-4 branched, 7-20 flowered, 7-14 cm long; branches 3-7 flowered. Peduncle consisting of 1-2 internodes, *ca.* 1 cm long, enclosed by 1-2 sterile, at the base tubular, acute to acuminate bracts. Rachis *ca.* 7.5 cm long, *ca.* 3 mm diam.; internodes 9-20 mm long. Sterile bracts at the base of the branches *ca.* patent, deeply boat-shaped; in natural position seen from the side narrowly ovate, 13-34 by 8-26 mm when folded flat; top acuminate, the lowermost bract sometimes drawn out into a leaf blade-like tip. Floral bracts elliptic, 5-17 by 8-14 mm when flattened; top acute. Pedicel *ca.* 10 by 1 mm. Ovary *ca.* 3 by 2 mm. Median sepal narrowly elliptic to oblong, 10-24 by 4-8 mm; top acute; nerves 8. Lateral sepals obliquely narrowly oblong to ovate oblong, 11-23 by 4-8 mm; base broadly attached, oblique; top acute; nerves 8. Petals thinner than sepals, narrowly obovate-oblong to obovate-lanceolate, 11-20 by 2-6 mm; base broadly attached, slightly swollen; top obtuse-acute; nerves 7. Lip 11-20 by 6-12 mm over the lateral lobes when flattened. Hypochilium 6-15 mm long, lateral lobes erect projecting forwards with rounded top, *ca.* 2 by 1 mm; nerves many, fine; keels over the entire length of the hypochilium, in the back about as wide or wider than high, in the front part of the hypochilium descending to *ca.* 0.5 mm, with irregular warty margin. Epichilium *ca.* rhomboid with rounded corners, 5-7 by 4-8 mm; top obtuse to truncate; keels 5, with warty margin, the central 3 continuation of those on the hypochilium and lateral ones continuing somewhat on the hypochilium. Column *ca.* 15 by 2 mm, margin narrowly wing-like, *ca.* 1 mm wide; top irregular, steldia not hardly developed. Rostellum *ca.* 1.5 by 1.5 mm. Anther 2 by 2 mm. *Fruit* beaked, the perianth and column long persistent; body ellipsoid, with 3 grooves which wide near the top, margin of grooves somewhat swollen valves, smooth, midrib faint, 22-25 by 10-14 mm.

Distribution. West Malesia, in Indonesia can be found in Sumatra and West Papua (Fig. 1).

Ecology. Forested ridge. Altitude 1000 to 2100 m.

Collector notes. Epiphyte, solitary or sometimes somewhat gregarious along wood-border on stony soil, rather common. Ascending, hardly branched. Stem carmine brownish. Leave above some what dark green below a little lighter. Flower cream, white or yellow to yellowish green, lip purple.

Specimens examined. Sumatra, Aceh, fl. December 1927, van Stenis 9165 (BO); Bengkulu, *s.d.*: Wynling 54 (BO); Pangkulubahu eastern Toba: fl. September 1914, Lorzing 17101 (BO). Papua: Mt. Watjetoni, Kebar valley: fl. 24 November 1960, alt. 1000 m, Chr. Versteegh BW 10344 (BO).

2. *DILOCHIA LONGILABRIS* J. J. Sm., Bull. Jard. Bot. III. (1931) XI: 3. - Type: East Kalimantan, West Kutai, G. Kemul, primary forest, alt. 1200 m, fl. 26-27 September 1925, Endert 3597 (BO!, L).

Plant over 91 cm long. *Leafsheath* longitudinal ribbed, free part 2-5 cm long; lower ones widened at the top, higher ones enclosing the stem tightly over the entire length. *Leafblade* narrowly ovate to ovate, 12-16 by 3.5-7 cm; petiole-like base, *ca.* 0.5 cm long; top cuspidate. *Panicle* 2-branched, 16- flowered, *ca.* 11 cm long; branched 4-8 flowered. Peduncle consisting of 3 internode, *ca.* 2 cm long, enclosed by 3 sterile, acuminate bracts. Rachis 9 cm long, 1-2 mm diam.; internodes 5-15 mm long. Sterile bracts at the peduncle, in natural position seen from the side narrowly ovate, 2-3.3 by 0.5-0.7 cm; top of the lowermost drawn out into a leaf-like tip. Floral bracts in natural position seen from the side narrowly ovate, 10-20 by 5-10 mm; top acuminate. Flowers opening few at the same time. Pedicel *ca.* 10 by 1 mm. Ovary *ca.* 7 by 2 mm. Median sepal narrowly triangular, 20-25 by 5-6 mm; top acute, developed into a wing, *ca.* 0.5 mm wide; nerves 13. Lateral sepals in front view narrowly ovate, 21-24 by 5 mm; oblique; top cuspidate, developed into a wing 1-3 mm; nerves 5, not prominent. Petals narrowly ovate to oblong, 20-23 by 7 mm; oblique; top acute; nerves 11. Lip 18-20 by 7 mm. Hypochilium 8-10 mm long, broadly sessile; lateral lobes *ca.* erect, projecting forwards with rounded top, *ca.* 2 by 1 mm; nerves prominent; keels 3, over the entire length of the hypochilium, in

the front part of hypochilium descending to *ca.* 0.1 mm, relatively wide apart at the base starting, *ca.* 0.5 mm high, laterally at the place of attachment, toward the top all slightly undulating. Epichilium about rectangular, 9-12 by *ca.* 5 mm; top obtuse to truncate; keels 5, with undulating margin, the central 3 continuation of those on the hypochilium, the lateral ones continuing somewhat on the hypochilium. Column 12-18 by 3-4 mm; margin narrowly wing-like, *ca.* 1 mm wide; top irregular, stelia hardly developed; column foot not present. Rostellum *ca.* 4 by 3 mm. Anther *ca.* 2 by 2 mm.

Distribution. Borneo including Kalimantan (Fig.1).

Ecology. Mountains Primary forest at altitude 1200 m.

Collectors note. Large epiphyte, herb. Flower outside with reddish violet markings (dots and dashes) inside whitish. Lip with longitudinal reddish violet markings.

Notes. The species very close to *D. wallichii* but they have some differences on leaf sheath, epichilium and wing on the column. Wood *et al.* (1993) did not mention about this species. They mentioned only 4 species of *Dilochia* in Borneo, there are *D. cantleyi*, *D. parviflora*, *D. rigida* and *D. wallichii*.

Specimen examined. Only type specimen is available. East Kalimantan, West Kutai, G. Kemul, primary forest, alt. 1200 m, fl. 26-27 September 1925, Endert 3597 (BO!, L).

3. *DILOCHIA PARVIFLORA* J. J. Sm., Bull. Jard. Bot. Buit. 1931. III. XI: 112; Carr., Gard. Bull. Sing. (1938) 8:238. - Type: East Kalimantan, West Kutei, G. Kemul, primary forest, alt. 1800 m, fl. October 1925, Endert 4262 (BO!).

Plant over 40 cm long. *Leafsheath* appressed, free part 2-2.5 cm long, rather smooth, laterally with few raised nerves. *Leafblade* narrowly ovate, 5.5-7 by 1.5-2.4 cm; petiole-like base, *ca.* 3 mm long; top acuminate. Panicle, 10 flowered, 7-branched, *ca.* 1.2 cm long. Peduncle consisting of one internode, *ca.* 1.8-2.5 cm long, sterile bract not seen. Rachis 10 cm long, 2 mm diam.; internode 10-13 mm long. Sterile bracts at the base of the branches *ca.* patent, boat-shaped; in natural position seen from the side narrowly ovate, 12-20 by 4-6 mm; top acuminate; in the lowermost bract drawn out into a leafblade-like tip. Floral bract elliptic, 9

by 2 mm when flattened; top acute. Pedicel *ca.* 5 by 0.2 mm. Ovary *ca.* 3 by 1.8 mm. Median sepal obovate to oblong, 10-12 by 5 mm; top obtuse; nerves 9. Lateral sepals obliquely oblong to ovate-oblong, 9-11 by 5 mm; base broadly attached, oblique; top acuminate; nerves 8. Petals narrowly ovate-oblong, 8-9 by 3 mm; base broadly attached; top acute to acuminate; nerves 7. Lip *ca.* 7.5 by 3-5 mm over the lateral lobes when flattened. Hypochilium 4.5-5 mm long; lateral lobes erect, projecting forwards, with rounded top, *ca.* 1 by 1 mm; nerves not seen; keels 5 over the entire length of the hypochilium, broadest at the base, narrowing and converging to the top, consisting of rather coarse warts. Epichilium rhomboid with rounded corners, *ca.* 3 by 2 mm; top obtuse to truncate; keels 3, continuing from those on the hypochilium. Column slightly widened at the top, *ca.* 9 by 2 mm; margin narrowly wing-like, *ca.* 1 mm wide; top irregular; column foot well developed, erect forward, 1.3 mm long, 1.3 mm thick, make rounded area with column; stelia well developed, triangular, obtuse at the top, recurved. Rostellum 1.5 by 1 mm. Anther 1.5 by 1.2 mm.

Distribution: Borneo, Kalimantan (Fig.1)

Ecology. Mountain forest at altitude 1800 m.

Collector notes, epiphyte, herb, flower red violet spot, column white.

Specimen examined. Only from the type collection, East Kalimantan, West Kutei, G. Kemul, primary forest, alt. 1800 m, fl. October 1925, Endert 4262 (BO!).

4. *DILOCHIA RIGIDA* (Ridl.) J. J. Wood, R. S. Beaman & J. H. Beaman, Pl. Kinabalu (1993) 2: 206. *Bromheadia rigida* Ridl. ex Stapf, Trans. Linn. Soc. Bot. (1894) 4:239. - Type: Borneo, Mount Kinabalu, alt. 1800 m, Haviland 1251 (K). *Arundina gracilis* Ames & C. Schweinf, Orch. 6: 96 (1920). *Dilochia gracilis* (Ames & C. Schweinf.) Carr., in Gard. Bull. Straits Settlements (1935) VIII:91. - Type: Borneo, Marai Parai Spur, Clemens 370 (AMES, BM).

Plant over 21 cm long. *Leafsheath* faintly longitudinally ribbed appressed, free part 0.4-0.6 cm long. *Leafblade* linear elliptic to linear ovate, 3.5-6.5 by 0.6-0.7 cm; base broadly sessile, slightly narrowed; top acute; nerves indistinct, the midrib above sunken, below prominent. Raceme, 2-4 flowered, *ca.* 1 cm long. Peduncle minute, *ca.* 0.4 cm

long, with one sterile bract. Rachis *ca.* 0.6 cm long, *ca.* 1 mm diam.; internodes *ca.* 3 mm long. Sterile bract in outline from the side narrowly ovate, 14 by 2 mm, like the fertile ones. Floral bract in natural position seen from the side narrowly ovate, *ca.* 10 by 3 mm; top acuminate; midrib to the top developed into the wing. Pedicel *ca.* 2 by 1 mm. Ovary *ca.* 3 by 2 mm. Median sepal narrowly ovate, *ca.* 19 by 5 mm; top acuminate; nerves 5, midrib slightly swollen; at the top developed into a wing-like structure. Lateral sepals narrowly ovate, 15-19 by 5 mm; base broadly attached; top acute, at the top developed into a wing-like structure; nerves 7. Petals narrowly ovate, *ca.* 17 by 3 mm; base broadly attached; top acute; nerves 7. Lip *ca.* 17 by 9 mm when flattened. Hypochilium *ca.* 9 mm long; lateral lobes erect projecting forwards, with rounded top, *ca.* 5 by 3 mm; nerves many, fine; keels 3 over the entire length of the hypochilium, toward the top slightly undulating. Epichilium rhomboid, with rounded corners, *ca.* 8 by 6 mm; top obtuse to truncate; keels 3 with undulating margin, continuation from those on the hypochilium, the central one longer. Column *ca.* 15 by 3 mm; margin narrowly wing-like, *ca.* 1 mm wide; top irregular, with irregular triangular lobes, steldia well developed; column foot not present. Rostellum *ca.* 1 by 2 mm. Anther *ca.* 2 by 1.5 mm.

Distribution. Borneo, Kalimantan (Fig.2).

Ecology. This species can be found in deeply mossy floor of the summit. Altitude: 1700-1900 m.

Collectors note. Flowers cream green, striped on petals and lip with purple, buds cream, the flowers persistent on the seed.

Notes. The species have quite different leaves with other species in this genus and also with very small inflorescence. However based on flowers examination it still shows general characteristic of *Dilochia*.

Specimens examined. East Kalimantan, G. Buduk Rakik: Kato *et al.* B 11070 (BO); West Kutei, strl. 17 November 1925, alt. 1800 m, F.H. Endert 4264 (BO!, L).

5. *DILOCHIA WALLICHII* Lindl. ex Wall, Cat. n. 1952, nom. nud.; Lindl., Gen. & Spec. Orch. (1830): 38; Blume, Fl. Jav. Orch. (1858) 11,1: 22, t. 8, 5 A.; J. J. Sm., Orch. Jav. (1905) VI: 231; J. J. Sm., Enum. Orch. Sumatra (1933): 186; Carr., Gard. Bull. Sing. (1938) 8:237; Back., Bekn. Fl. Java.

Orch. (1952) 1:151; Hender., Mai. Wild. Fl. (1954):54; Seidenf. & Smitin., Orch. Thail. (1959) 1:184; Holtt., Fl. Malaya (1964):190.; Back. & Bakh. f, Fl. Java (1968) III: 293. - Type: Singapore: Wallich 1952 (n.v.). *Arundina wallichii* Rchb. f Xenia Orch. (1890) II: t. 105; Hook, f, Fl. Br. Ind. V: 858.

Plant over 65 cm long. *Leafsheath* longitudinal ribbed free part 3-5 cm long; lower ones widened at the top, higher ones from halfway upwards. *Leafblade* narrowly ovate, 6.8-17 by 2-4.8 cm; petiole-like base, 3-10 mm long; top cuspidate. *Raceme* 1-2 branched or panicle, 7-8 flowered, 8.2-20 cm long; branches 4-8 flowered. Peduncle consisting of 2-4 internode, 1-3.5 cm long, enclosed by 2-4 sterile, not articulated, at the base tubular, acuminate bracts. Rachis 5.2-18 cm long, 1-4 mm diam.; internodes 8-22 mm long. Sterile bracts at the peduncle in natural position seen from the side narrowly ovate, 16-35 by 5-6 mm. Floral bracts in natural position seen from the side narrowly ovate, 19-25 by 3-5 mm; top acuminate. Pedicel 6-20 by 1 mm. Ovary 3-6 by 1-2 mm. Median sepal narrowly triangular to narrowly elliptic, 18-21 by 3-8 mm; top cuspidate; nerves 11. Lateral sepals narrowly ovate, 17-23 by 3-6 mm; base broadly attached; obliquely; top cuspidate, developed into a wing, *ca.* 1.5 mm; nerves 13. Petals with similar consistency as the sepals, narrowly obovate to narrowly ovate, 18-23 by 3-6 mm; base broadly attached, slightly swollen; top acute to acuminate, nerves 9. Lip 18-25 by 7-15 mm over the lateral lobes when flattened. Hypochilium 12-14 mm long; lateral lobes erect, projecting forwards, with rounded top, *ca.* 1 by 3 mm, nerves many, fine; keels 3 over the entire length of the hypochilium, at the base highest plate-like, in the front part of the hypochilium descending to *ca.* 0.5 mm and there on either side flanked with a short or without additional keel, straight or undulating margin. Epichilium rhomboid with rounded corners, *ca.* 6 by 5-8 mm; top obtuse to truncate; keels 5, with undulating margin, the central 3 a continuation of those on the hypochilium, the lateral ones continuing somewhat on the hypochilium, top as long as central keel or lower *ca.* 3 mm from the top. Column 12-15 by 2-5 mm, margin narrowly wing-like *ca.* 1 mm wide; top irregular, steldia hardly developed; column foot not present. Rostellum *ca.* by 2 mm. Anther *ca.* 2 by 2 mm. *Fruit* beaked, the perianth and column long persistent; body ellipsoid, with 3 grooves which widens near the top, margin of grooves somewhat swollen; valves smooth, midrib faint, 15 - 20 by *ca.* 10 mm.

Distribution. Thailand, Malesia (Kalimantan, Sumatra, Java to New Guinea). (Fig. 2).

Ecology. Primary forest or rather open forest, often near the ground. Granitic sand. Sandstone. Dry low woody vegetation in solfatare area, rather common. Altitude 30 to 1500 m.

Collectors note. Epiphyte rather exposed, rare. Leaves dark purplish. Flowers not fully open. Petals purplish outside, dull yellow inside. Sepals yellowish, lateral ones somewhat oblique, inside light yellowish green, basally with a semicircular purplish spot consisting of small spots. Lip purple strips yellow. Pollinia 8, flat, obovate, bright yellow.

Specimens examined. Kalimantan, Grayau-Selimbau: strl. 9 May 1983 alt. 200 m, primary forest, J.J.Afriastini 1138a (BO); West Pontianak, Mandor: fl. 1929, Schuitemaker 178 (BO). Sumatra, North Sumatra, Aik na uli near Pematang Siantar: Alston 15279 (BO); Bandarbaru near Sibayak: fl. 3 September 1914, Lorzing 7260 (BO); Sibolangit: fl. 2 November 1919, Lorzing 5377 (BO); fl. November 1920, Lorzing 12592 (BO); Tapanuli, Toba: fl. 28 March 1926, Ruttner 199 (BO), fl. November 1895, Ouwehand 391 (BO); Sipirok: fl. 16 May 1993, alt. 1300 m, J.J.Afriastini 2312 (BO); Bangka, G. Maros: Kostermans 1368 (BO); Bengkulu: Rappard 68 (BO). Java, West Java, Halimun, Cikaniki: fl. 30 March 2002, alt. 1000 m, cultivated, Asep Sadili 1070 (BO); ditto, Citorek, Cikelat, Cibeber: fir. 28 June 1997, secondary forest, Uway & Asep Sadili 27 (BO).

6. *Dilochia carnos*a Sulistiarini *sp. nov.*

*Dilochia carnos*a is related to *D. cantleyi*. This new species differs by having straight margin keel, fleshy and swollen margin lateral column, without wing and fine developed stielidia. — Type: Indonesia, Sumatra, Tanjung Gadang, s.d. Theunissen & Jacobson 2262 (Holotype BO!).

Plant over 60 cm long. *Leafsheath* longitudinal ribbed free part 4.5-5 cm long. *Leafblade* narrowly ovate to ovate, 12-17 by 3.5-5 cm; petiole-like base, *ca.* 1.5 cm long; top acute to acuminate. Panicle 3-branched, 18 flowered, *ca.* 20 cm long; branches 6-7 flowered. Peduncle without internode, *ca.* 1 cm long. Rachis *ca.* 19 cm long, 5 mm diam.; internodes 1.2-1.5 cm long. Sterile bracts at the base of the branches patent, boat-shape; in natural position seen from the side oblong, 25-28 by 22-26

mm; top acuminate, the lowermost bract sometimes drawn out into a leafblade-like tip. Floral bracts ovate, 16-18 by 12-15 mm when flattened; top acute. Pedicel *ca.* 15 by 2 mm. Ovary *ca.* 5 by 4 mm. Median sepal oblong, 24-26 by 8 mm; top acute; nerves 11. Lateral sepals obliquely narrowly oblong, 22-25 by 7-10 mm; base broadly attached; top acute, developed into a wings; nerves 11. Petals ovate oblong to ovate lanceolate, 23-26 by 6-11 mm; base broadly attached, slightly swollen; top obtuse-acute; nerves 8. Lip 19-22 by 12 mm over the lateral lobes when flattened. Hypochilium 15-16 mm long, broadly sessile; lateral lobes erect projecting forwards with round top, *ca.* 1 by 3 mm; nerves many, fine; keels 3 over the entire length of the hypochilium, in the back plate-like, *ca.* 2 mm high, in the front of the hypochilium descending to *ca.* 1 mm high. Epichilium *ca.* rhomboid with rounded corner, 4-6 by 10 mm; top obtuse to truncate; keels 5 with warty margin, the central 3 continuation of those on the hypochilium and lateral ones continuing somewhat on the hypochilium. Column *ca.* 19 by 6 mm; laterally with a fleshy, somewhat swollen margin; top irregular, stielidia fine developed; column foot not present. Rostellum *ca.* 4 by 3 mm. Anther *ca.* 3 by 3,5 mm.

Distribution. Sumatra (Fig. 1).

Ecology. Mountainous forest at altitude 900 m, known only from one collection.

Etymology. The epithet name refers to fleshy lateral column of *D. carnos*a compared with *D. cantleyi* which has thin lateral column.

Notes. According to Smith (1933) the specimen collected by Theunissen & E. Jacobson 2262 was *Dilochia cantleyi*. I disagree with his specimen, because its lateral column is fleshy and without wing; keels on the back of hypochilium plate-like and higher than in the *D. cantleyi*, and its margin is straight. *D. cantleyi* is supposed to have wing in the column and keels and the back of the hypochilium is warty. Therefore it seems wise to separate this new species from the rest of *Dilochia* (Fig. 3 & 4).

Specimen examined. Sumatra, Tanjung Gadang, fl. s.d. Theunissen & Jacobson 2262 (BO).

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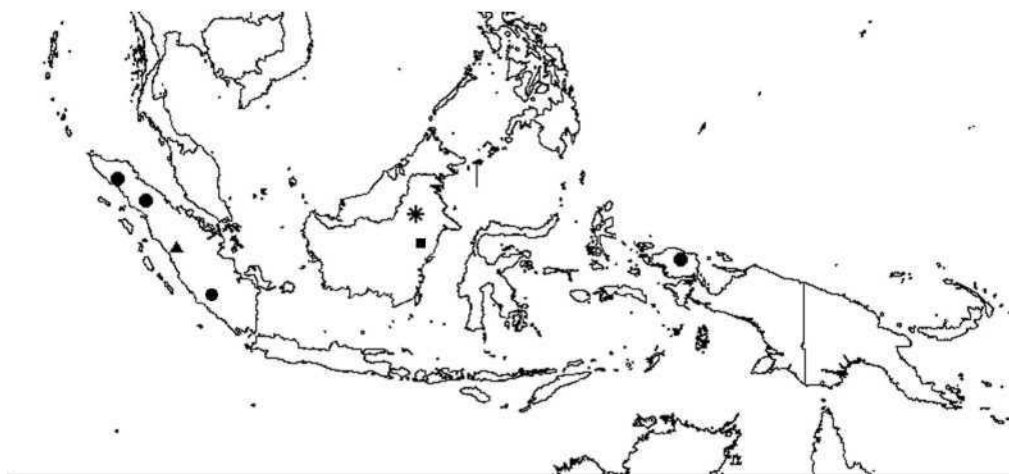


Fig.1. Distribution of *Dilochia cantleyi* (•), *Dilochia carnosata* (^A), *D. longilabris* (*) and *D. parviflora* (•).



Fig. 2. Distribution of *Dilochia rigida* (*) and *D. wallichii* (•).

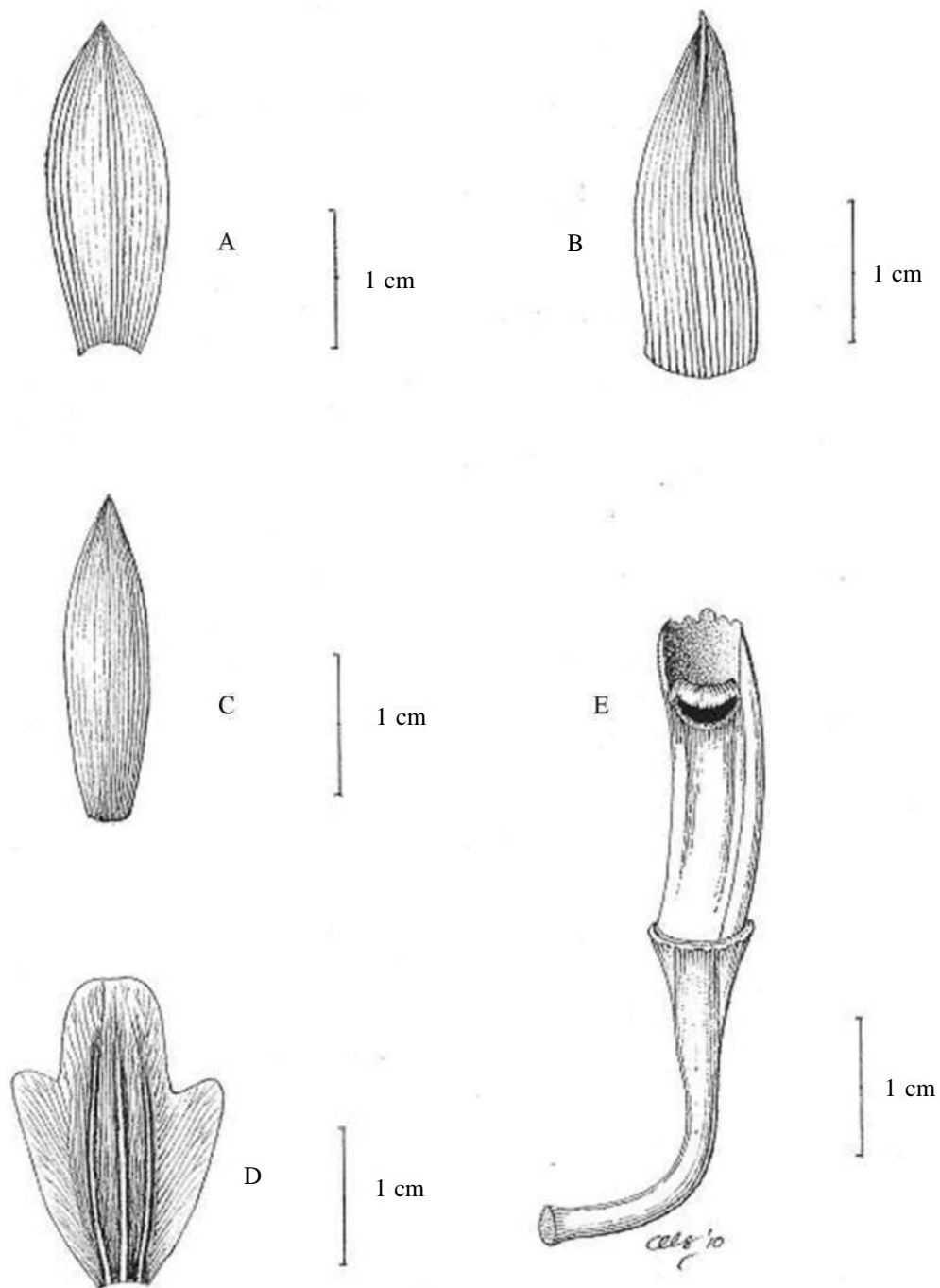


Fig. 3. Flower dissection of *Dilochia carnosa* Sulistiarini. A. Median sepal, B. Lateral sepals, C. Petals, D. Lip, E. Column. (Based on *Theunissen & Jacobson 2262*, BO). Drawn by Wahyudi Santoso (BO).

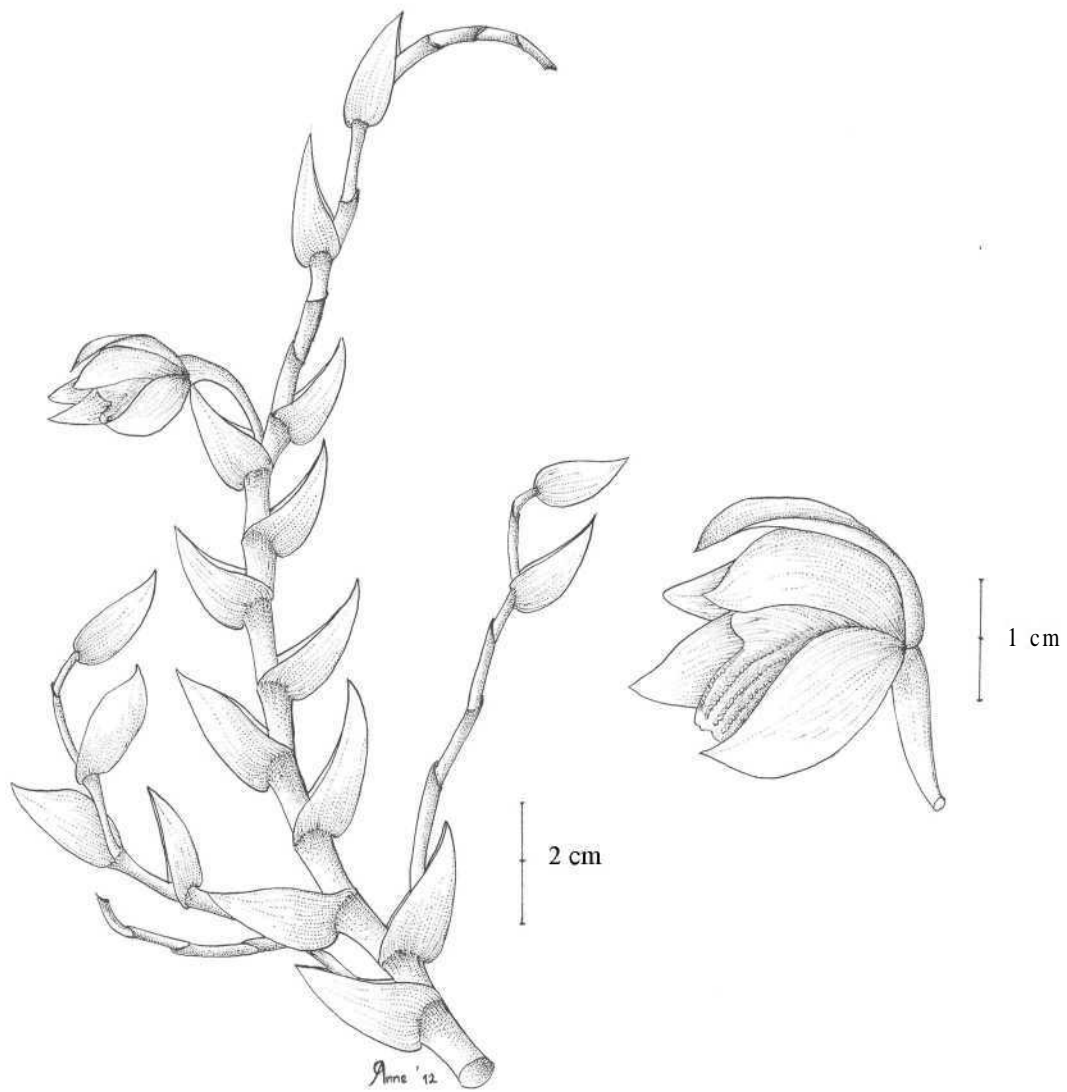


Fig. 4. Inflorescence and flower of *Dilochia carnosa* Sulistiarini. (Based on *Theunissen & Jacobson 2262*, BO). Drawn by Anne Kusumawaty (BO).

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