

New records in *Lecanorchis* Blume and *Vanilla* Plum. ex Mill. from Thailand, with keys to the Thai species

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ABSTRACT. Three orchid species, *Lecanorchis javanica* Blume, *L. nigricans* Honda and *Vanilla griffithii* Rehb.f., are newly recorded for Thailand. The species are described and illustrated. Keys to the Thai species of *Lecanorchis* and *Vanilla* are also provided.

KEY WORDS: *Lecanorchis*, *Vanilla*, Orchidaceae, new record, Thailand.

INTRODUCTION

Lecanorchis Blume and *Vanilla* Plum. ex Mill. belong to the tribe Vanilleae, subfamily Vanilloideae (Orchidaceae). Most genera of Vanilloideae are distributed worldwide. *Vanilla* is pantropical, with its greatest diversity in Brazil. The most important species for the production of vanilla is *V. planifolia*, a species indigenous to central America (Pridgeon et al., 2003).

The subfamily Vanilloideae consists of two tribes, Pogonieae Pfitzer ex Garay & Dansterv. and Vanilleae Blume (Pridgeon et al., 2003). Only tribe Vanilleae is known from Thailand. Seidenfaden (1978) recorded 2 species of *Lecanorchis* (*L. malaccensis* Ridl., *L. multiflora* J.J. Sm.) and 4 species of *Vanilla* from Thailand (*V. albida* Blume, *V. aphylla* Blume, *V. pilifera* Holttum and *V. siamensis* Rolfe ex Downie). During the preparation of the Vanilloideae account for the Flora of Thailand by the first author, *L. javanica* Blume, *L. nigricans* Honda and *V. griffithii* Rehb.f. were found to be new records for Thailand.

LECANORCHIS

Blume, Mus. Bot. 2: 188. 1856; Seidenf., Dansk Bot. Ark. 32(2): 125. 1978; T. Hashim., Ann.

Tsukuba Bot. Gard. 9: 1. 1990; Seidenf. & J. J. Wood, Orchids Penins. Malaysia Singapore: 132. 1992; Pridgeon et al., Gen. Orchid. 3: 316. 2003; S. C. Chen et al. in Z. Y. Wu et al. (eds.), Fl. China 25: 171. 2009.

Terrestrial, achlorophyllous, mycoheterotrophic, rhizomatous herbs; rhizome thin, J-shaped, with numerous fleshy roots; aerial stem simple or branched, thin, brittle, with sheaths, black, dark purple or brown. Foliage leaves reduced to triangular, scale-like sheaths or bracts. Inflorescences erect, terminal on the new shoot or lateral on the old stem, few- to many-flowered, opening in succession with one or two opening at a time. Flowers not opening widely. Sepals free, 5- to 7-veined, glabrous. Petals free, 3- to 5-veined, glabrous. Labellum entire or 3-lobed, typically adnate along its margin to the base of the column forming a short tube, rarely free; disc covered with unicellular and multicellular hairs, giving the apex of the labellum a bearded appearance. Column elongate, with a pair of small wings on each side of the anther; pollen forming two friable masses. Ovary slender, with a cup-like denticulate calyculus at apex. Fruit a capsule, with persistent calyculus at apex. Seeds slender, with lateral micropyle and small testa cells.

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A genus of about 20 species, distributed from northeastern India, Bhutan, Myanmar, Thailand, Indochina, Peninsular Malaysia, Borneo,

Sumatra, Java, the Philippines and New Guinea to Japan; 4 species in Thailand.

KEY TO THE SPECIES

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|--|---------------------------------|
| 1. Labellum simple, rarely indistinctly 3-lobed, bluish-purple at apex | 4. <i>L. nigricans</i> |
| 1. Labellum clearly 3-lobed, white or light yellow at apex | |
| 2. Labellum side lobes triangular at apex, extending far beyond the column | 1. <i>L. javanica</i> |
| 2. Labellum side lobes rounded at apex, not or slightly extending beyond the column | |
| 3. Labellum side lobes slightly extending beyond the column; no calli between side lobes. Sepals and petals 15–17 mm long | 2. <i>L. malaccensis</i> |
| 3. Labellum side lobes not extending beyond the column; with two calli on the blade of the lip between the side lobes. Sepals and petals about 10–11 mm long | 3. <i>L. multiflora</i> |

Lecanorchis javanica Blume, Mus. Bot. 2: 188. 1856; O'Byrne & Vermeulen, Malayan Orchid Rev. 36: 48. 2002.— *L. pauciflora* J. J. Sm., Bull. Jard. Bot. Buitenzorg II, 26: 6. 1918. Fig. 1 & Fig. 3A–B.

Flowering shoots 15–30 cm tall, erect, light brown to dark brown, 1.5–3.5 mm in diam. at base, branched or not; nodes with sheaths; sheaths glabrous except the ciliate margin, ovate, 1–7 mm long, acute to acuminate, coriaceous, base amplexicaul. Inflorescence glabrous; rachis 1–4 cm long, 3–6-flowered; bracts ovate-lanceolate, glabrous, smooth or minutely muricate, 0.5–5 by 1–1.5 mm. Flowers long-pedicellate. Sepals greenish-yellow, glabrous, smooth or minutely muricate near apex, not or slightly cucullate; dorsal sepal oblong-oblancheolate, 12–19 by 2–4 mm, 5-veined, apex acute to obtuse; lateral sepals oblong-oblancheolate, 11–18 by 2–4 mm, 5-veined, apex acute to obtuse. Petals greenish-yellow, glabrous, oblong, 11–17 by 2.5–4 mm, 4–5-veined, apex acute to obtuse. Labellum white or light yellow, 3-lobed, 14–18 mm long along the mid-line, base adnate to the column up to half of the column length, 6–7-veined, major veins branched above; side lobes triangular, apex much exceeding the column; midlobe oblong, 3–5 mm wide, hairy except the erose margin, hairs multicellular. Column glabrous, 7–12 mm long; winged at the top, semicircular; anther ca 1.5 mm long, glabrous. Ovary (including pedicel) 10–20 mm long; calyculus glabrous, 0.5–1 mm long, margin irregularly denticulate. Capsule not seen.

Thailand.— SOUTH-EASTERN: Chanthaburi [Khao Soi Dao Wildlife Sanctuary, 27 May 2007, *Tripetch* 008 (BKF, spirit collection)]; PENINSULAR:

Nakhon Si Thammarat [Sanyen mountain, Khao Nan National Park, 1,310 m, 8°43'909"N, 99°32'181"E, 11 March 2009, *Chantanaorrapint, Pattarakulpisutti & Inuthai* 14 (PSU, spirit collection)], Yala [Betong, Hala-Bala Wildlife Sanctuary, trail up unnamed '1490' mountain reached from the shores of Bang Lang Reservoir, 5.977° N, 101.418° E, *Middleton, Chamchumroon, Lindsay, Phuphat & Pooma* 3677B (BKF, spirit collection)].

Distribution.— Vietnam, Peninsular Malaysia, The Philippines, New Guinea (O'Byrne & Vermeulen, 2002) and Java (type).

Ecology.— In lower montane forest; 1000–1500 m altitude; Flowering: March–May.

Lecanorchis nigricans Honda, Bot. Mag. (Tokyo) 45: 470. 1931; T. S. Liu & H. J. Su, Fl. Taiwan 5: 1039. 1978; T. Hashim., Ann. Tsukuba Bot. Gard. 9: 27. 1990; C. Xinqi, P. J. Cribb & S. W. Gale in Z. Y. Wu, P. H. Raven, & D. Y. Hong (eds.), Fl. China 25: 172. 2009. Fig. 2 & Fig. 3C–D.

Flowering shoots 15–40 cm tall, erect, dark brown to black, 1.5–2 mm in diam. at base, branched at base; nodes with sheaths; sheaths glabrous, ovate, 1–3 mm long, acute, coriaceous, base amplexicaul, margin membranous. Inflorescence glabrous; rachis 1–5 cm long, 5–25-flowered; bracts ovate, glabrous, 0.5–1.5 by 1–2 mm. Flowers long-pedicellate, greenish-yellow. Sepals greenish-yellow, glabrous, minutely muricate near apex, 5-veined, with 3 veins distinct and 2 veins obscure, slightly cucullate; dorsal sepal oblong-oblancheolate, 13–15 by 2–3 mm, apex obtuse; lateral sepals oblong-oblancheolate, 14–15 by 2–2.5 mm, apex obtuse. Petals light greenish-yellow, glabrous,

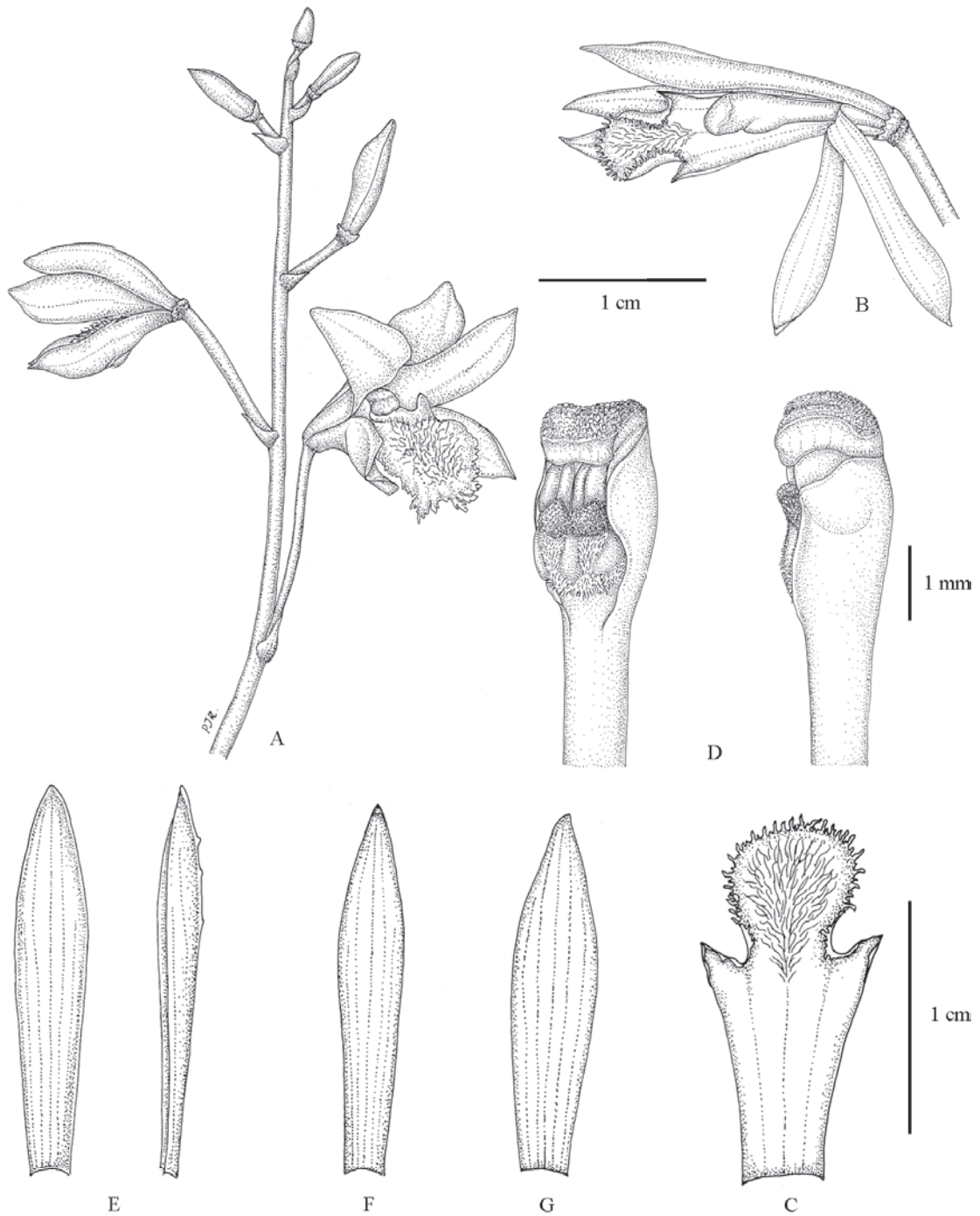


Figure 1. *Lecanorchis javanica* Blume: A. inflorescence; B. flower; C. labellum; D. column; E. dorsal sepals; F. lateral sepal; G. petal, all from *Chantanaorrapint, Pattarakulpisutti & Inuthai 14* (PSU). Drawn by Pajaree Inthachub.

oblong-oblongate, 12–15 by 2–3 mm, 3–4-veined, apex obtuse. Labellum simple, rarely indistinctly 3-lobed, shortly obovate, 14–16 mm long along the mid-line, 5–8 mm wide, around the middle with 2 faint, finely pubescent oblong bands, base adnate to the column more than half of the column length, slightly gibbous on anterior side, 7-veined, major veins branched above; epichile hairy, bluish-purple, hairs multicellular. Column glabrous, 11–12 mm long; winged at the top,

semicircular; anther 1–1.5 mm long, glabrous. Ovary (including pedicel) 15–20 mm long; calyculus glabrous, 0.5–1 mm long, margin irregularly denticulate. Capsule fusiform, 1.5–3 by 2–2.5 mm.

Thailand.— SOUTH-EASTERN: Chanthaburi [Namtok Phlio National Park, Trok Nong Ranger Substation, 20 June 2005, *Hemrat* s.n. (BKF, spirit collection); Khao Soi Dao Wildlife Sanctuary, 28 May 2007, *Tripetch* 009 (BKF, spirit collection)]; CENTRAL: Nakhon Nayok [Khao Yai National Park,

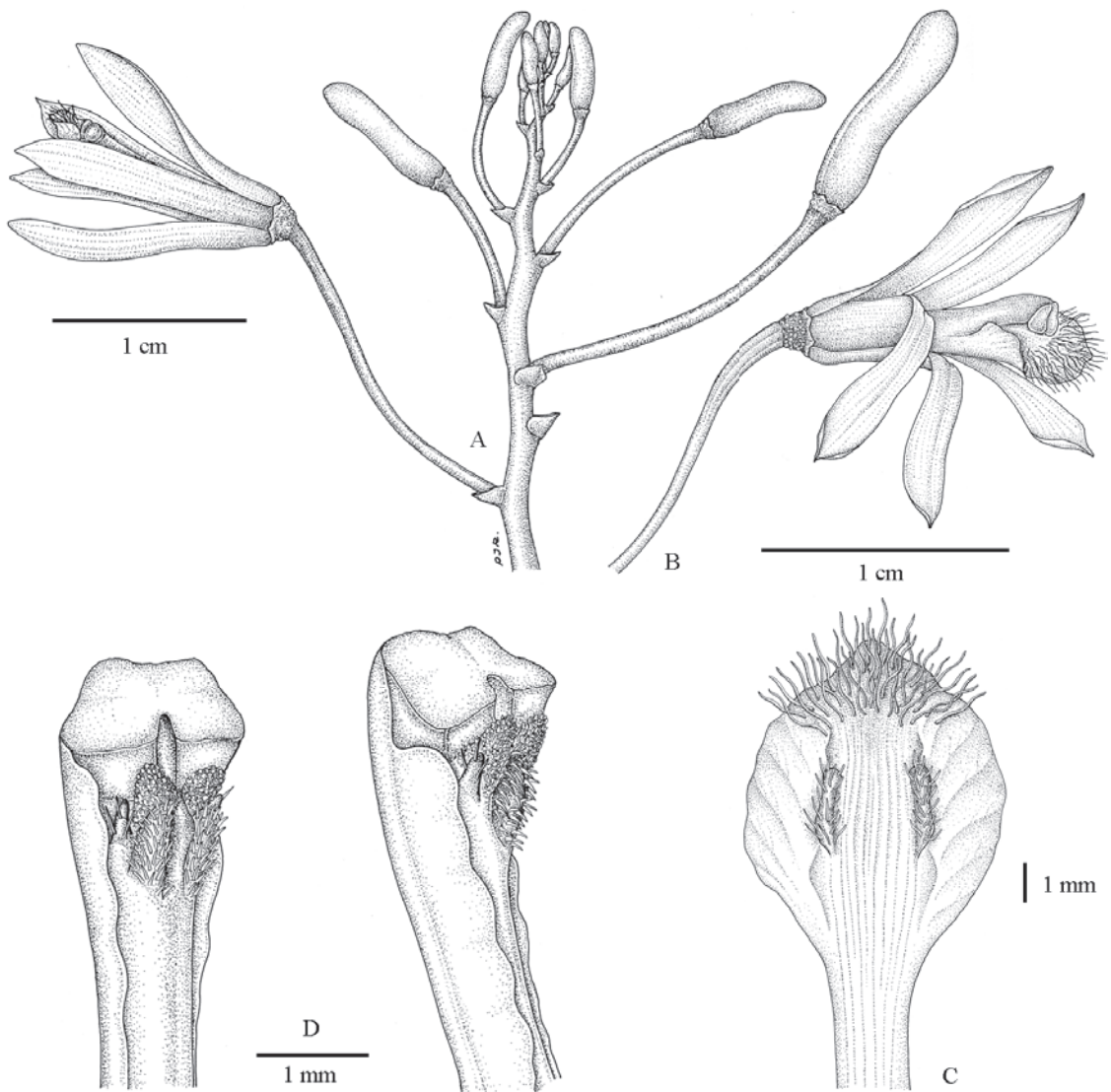


Figure 2. *Lecanorchis nigricans* Honda: A. inflorescence; B. flower; C. labellum; D. column, all from *Hemrat* s.n. (BKF). Drawn by Pajaree Inthachub.

trail to Pha Tabaek Waterfall, 14 June 2009, *Tripetch* 018 & 019 (BKF, spirit collections)].

Distribution.— Japan (type), Taiwan, S China.

Ecology.— In tropical evergreen forest and lower montane forest; 400–1000 m altitude; Flowering: May–July.

VANILLA

Plum. ex Mill., Gard. Dict. Abr., ed. 4, 3 [unpaginated]. 1754; Seidenf., Dansk Bot. Ark. 32(2): 138. 1978; Seidenf. & J. J. Wood, Orchids Penins. Malaysia Singapore: 124. 1992; Pridgeon et al., Gen. Orchid. 3: 321. 2003; S. C. Chen & P. J. Cribb in Z. Y. Wu et al. (eds.), Fl. China 25: 167. 2009.

Terrestrial or hemiepiphytic, chlorophyllous, climbing herbs; aerial roots produced one at each node; stems branched, cylindric or quadrangular, sometimes longitudinally grooved, thin to thick, succulent, smooth, glabrous, green. Foliage leaves large and fleshy or reduced to small scales and

caducous, base not sheathing, one at each node, distichous or spirally arranged, glabrous; petiole usually twisted at intersection to stem. Inflorescences axillary, racemose, few- to many-flowered; rachis with scale-like bracts. Flowers large, showy, short-lived, opening in succession. Sepals free, spreading, smooth, 5–7-veined. Petals free, spreading, 5-veined, often with strong midvein. Labellum adnate to the sides of column with its basal margins, forming a chamber, the free part entire or 3-lobed, usually with hairy appendages inside, often longitudinally grooved outside. Column long, slender, curved near the top; anther pointing downwards on the front of the column; pollen forming up to 4 sticky pollen smears without caudicles or viscidium, rostellum broad below anther. Ovary slender, articulate to sepals and petals. Fruit fleshy, cylindric, indehiscent. Seeds large, with stout testa.

A genus of about 107 species, distributed throughout tropical America, Africa, Madagascar to tropical Asia and the Pacific Islands (absent from Australia); 5 species in Thailand.

KEY TO THE SPECIES

1. Plants with leaves reduced to small scales **2. *V. aphylla***
1. Plants with leaves well-developed
 2. No brush on disc in middle of labellum but instead with a high woolly ball consisting of twisted very fine hairs. Midlobe bipartite by a split, with V-shaped hairiness of fine hairs limited to its centre. Sidelobes connate with column for less than half of the column length **3. *V. griffithii***
 2. Labellum with a brush on disc in middle of labellum, consisting of close transversal flat hinged scales, pointing downwards in the flower, dented or fringed along their broad truncate apex
 3. Midlobe of labellum with very dense long hairs continuing in a median band down to the brush without a glabrous interval **4. *V. pilifera***
 3. Midlobe of labellum with rather few flat papillae on its apical part, below which there is a glabrous interval down to the upper edge of the brush
 4. Papillae on apical part of labellum midlobe short, about 2 mm or less, no hairs on front of column. The tube formed by union of column and proximal part of labellum strongly tapering towards base, forming a narrow trumpet-like channel **1. *V. albida***
 4. Papillae on apical part of labellum midlobe very fat and long, about 5 mm or more. Column with long fine hairs on front **5. *V. siamensis***

Vanilla griffithii Rchb.f., Bonplandia 2: 88. 1854; Ridl., Fl. Malay Penin. 4: 201. 1924; Holtum, Rev. Fl. Malaya 1: 94, fig. 16c. 1953; Seidenf. & Smitinand, Orchids Thailand: 58. 1959; Seidenf., Dansk Bot. Ark. 32(2): 142. fig. 89. 1978; Seidenf. & J. J. Wood, Orchids Penins. Malaysia Singapore: 125, fig. 51a, 1992; Comber, Orchid. Sumatra: 132. 2001.—*V. albida* auct. non Blume: Hook. f., Fl. Brit. India 6: 91 p.p., 1890.—*V. tolypephora* Ridl., Trans. Linn. Soc. London, Bot. 3: 376. 1893. Fig. 3E.

Stems climbing to several meters long, cylindric, green, 3–8 mm in diam, longitudinally grooved; aerial root thin, tendril-like, produced one at right angle to petiole. Foliage leaves oblong to oblong-lanceolate, 10–20 by 3.5–8 cm, apex apiculate to cuspidate, coriaceous, glabrous; petiole 3–10 mm long. Inflorescence 3–12-flowered; rachis 3–6 cm long, glabrous; bracts ovate, 2–10 by 4–5 mm, persistent, coriaceous, glabrous. Flowers showy, long-pedicelled, opening widely at first, later



Figure 3. A. & B. *Lecanorchis javanica* Blume, photographed by Sahut Chantanaorrapint; C. & D. *Lecanorchis nigricans* Honda, photographed by Petch Tripetch; E. *Vanilla griffithii* Rchb.f., photographed by Suwit Thainukul.

closed. Sepals glabrous, greenish-yellow, more green at tip, obovate-oblongate, apex obtuse to rounded, slightly cucullate; dorsal sepal 2.5–3 by 1.3–1.5 cm, 15–17-veined; lateral sepals 2.5–3 by 1.3–1.5 cm, 17–19-veined. Petals glabrous, light greenish-yellow, more yellow at tip, obovate-oblongate, 2.3–2.5 by 1.4–1.5 cm, 11–13-veined, with strong midvein outside, apex obtuse to rounded, not cucullate. Labellum light greenish-yellow, with reddish-brown markings towards base inside, ovate-oblong in outline, obscurely 3-lobed, 1.8–2.5 cm long along the mid-line, with a high globose woolly ball consisting of twisted very fine hairs on the disc, 3–4 mm wide, side lobes rounded, connate to the column, less than half of the column length, 1.8–2.3 cm across both sides when spread out; midlobe bipartite by a split, margin membranous and plicate, at center with V-shaped area of fine hairs, pointing towards the apex. Column slender, 1–1.4 cm long, glabrous; anther ca 2 mm long, glabrous. Ovary (including pedicel) 1.5–3.5 cm long. Berry oblong, 4–8 by 1–1.2 cm.

Thailand.— PENINSULAR: Narathiwat [Sungai Padi, 12 July 2004, *Rattanabunno* 23 (BKF)].

Distribution.— Peninsular Malaysia, Borneo, Sumatra, type locality unknown.

Ecology.— In tropical evergreen forest, edge of swamp forest near sea level; Flowering: April–July.

ACKNOWLEDGEMENTS

Thanks to the staff of the following herbaria: BCU, BK, CMU, E, K, PSU, TCD and QBG for making their specimens available for study and for their assistance during the visits of the first author. The authors would also like to thank Pajaree Intachub for the illustrations.

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