

## ***Didymplexis micradenia* and *Gastrodia theana* (Orchidaceae), new records for Thailand**

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ABSTRACT. *Didymplexis micradenia* and *Gastrodia theana*, new records for Thailand, are described and illustrated.

KEY WORDS: Gastrodiinae, holomycotrophic.

### **INTRODUCTION**

*Didymplexis* Griff. and *Gastrodia* R.Br. are two holomycotrophic orchid genera belong to the subtribe Gastrodiinae, subfamily Epidendroideae. *Didymplexis*, containing about 20 species, occurs from Tropical and South Africa through India and Southeast Asia to north Australia (Liu & Su, 1978; Pridgeon et al., 2005). Previously, only the type species of *Didymplexis*, *D. pallens* Griff., was known from Thailand, but recently *D. micradenia* (Rchb.f.) Hemsl. was found at Kui Buri National Park in Prachuap Khiri Khan Province. *Gastrodia*, containing about 30 species, occurs from Sumatra to Japan and also in New Zealand (Seidenfaden, 1978). Previously, four species of *Gastrodia* were known from Thailand, *G. exilis* Hook.f., *G. fimbriata* Suddee, *G. javanica* (Blume) Lindl. and *G. verrucosa* Blume. Recently, a fifth species, *G. theana* Aver. was found at Khao Yai National Park in Nakhon Nayok Province.

**1. *Didymplexis micradenia* (Rchb.f.) Hemsl., J. Linn. Soc., Bot. 20: 311. 1883; T.C.Hsu & S.W.Chung, Taiwania 52(4): 360, fig. 2&3. 2007; S.C.Chen & J.J.Wood in Z.Y.Wu et al. (eds), Fl. China 25: 206. 2009.— *Epiphanes micradenia* Rchb.f. in B. Seemann, Fl. Vit.: 295. 1868.— *Leucorchis micradenia* (Rchb.f.) Benth. & Hook.f. ex Drake, Ill. Fl. Ins. Pacif. 7: 313. 1892. — *Didymplexis minor* J.J.Sm., Bull. Inst. Bot.**

Buitenzorg 7: 1. 1900; Orch. Java: 79. 1905; Orch. Java: Pl. LIII. 1908; Backer & Bakh.f., Fl. Java 3: 263. 1968.— *D. neocalledonica* Schltr., Bot. Jahrb. Syst. 39: 50. 1906.— *D. minor* subsp. *samoensis* H.Fleischm. & Rech., Denkschr. Kaiserl. Akad. Wiss., Wien. Math.-Naturwiss. Kl. 85: 251. 1910.— *D. samoensis* (H.Fleischm. & Rech.) Schltr., Repert. Spec. Nov. Regni Veg. 9: 85. 1910.— *D. papuana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 1: 43. 1911.— *D. minor* var. *amboinensis* J.J.Sm., Philipp. J. Sci., C 12: 253. 1917.— *D. fimbriata* Schltr., Bot. Jahrb. Syst. 56: 449. 1921.— *D. minor* var. *salmonea* J.J.Sm., Bull. Jard. Bot. Buitenzorg, sér. 3(11): 68. 1930. Fig. 1A–C.

Herbs, terrestrial, leafless, holomycotrophic, achlorophyllous. Flowering shoots 8–20 cm tall, erect; rhizome tuberous, fusiform or moniliform, usually horizontal, 2–7 cm by 4–8 mm; roots few, wiry, arising from neck at the top of rhizome; aerial stem erect, leafless, slender, with 3–6 scale-like sheaths, glabrous; sheaths 1–2.5 mm long, acute. Inflorescence laxly 3–15-flowered, glabrous; rachis elongating in fruit; floral bracts ovate, 1–1.5 by c. 1 mm, acute, caducous. Flowers white, narrowly campanulate, 0.6–1 cm long, opening in succession, not opening widely; pedicel and ovary 0.4–1.2 cm long. Dorsal sepal and petals connate, forming a hood, free portion shallowly 3-lobed, ovate-oblong, rounded; lateral sepals connate, free portion 2-lobed, broadly ovate, reflexed, rounded.

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*Labellum* white, obovate, 4–5.5 by 3.5–5 mm, apical margin irregularly denticulate, obtuse to rounded, lateral margins erect or incurved; disc with longitudinal yellowish-brown warty papillae along the middle part. *Column* clavate, 4.5–5 mm long, slightly curved, 2-winged at apex; column-foot short, indistinct. *Capsule* cylindric, 1.7–2.5 by 0.4–0.6 cm long.

Thailand.—SOUTH-WESTERN: Prachuap Khiri Khan [Kui Buri National Park, Phraek Takhro, *Supantee et al. 559 (BKF!)*].

Distribution.—Taiwan, Vietnam, West Java, New Guinea, SW Pacific (type: Fiji).

Ecology.—Tropical evergreen forest; 200–300 m alt. Flowering: Recorded in March.

Note.—Closely related to *Didymoplexis pallens* Griff., which is also known from Thailand. The two species may co-occur in mixed populations and overlap in flowering period. The main characters to separate the two species are found in the expanded labellum. In *D. pallens*, the expanded labellum is rounded-triangular, more than 6 mm wide, with the apical margin smooth to slightly undulate while in *D. micradenia* the expanded labellum is obovate, less than 5 mm wide, with the apical margin irregularly denticulate.

Table 1. Comparison of morphological characters of *Didymoplexis pallens* Griff. and *D. micradenia* (Rchb.f.) Hemsl.

characters	<i>D. pallens</i>	<i>D. micradenia</i>
Length of column foot (mm)	more than 2	less than 1
Shape of labellum	rounded-triangular	obovate
The width of labellum (mm)	more than 6	less than 5
The apical margin of labellum	smooth to slightly undulate	irregularly denticulate

**2. *Gastrodia theana* Aver.**, *Rheedia* 15: 90. 2005; S.I.Hsleh et al., *Taiwania* 57(4): 399, fig. 1–3. 2012. Fig. 1D–F.

Herbs, terrestrial, leafless, holomycotrophic, achlorophyllous. *Flowering shoots* 3–10 cm tall, erect; rhizome tuberous, fleshy, 1.5–5 by 0.6–1.5 cm, pubescent; roots 2–4, filiform, to 8 cm long, white, arising from neck at the top of rhizome, glabrous; aerial stem erect, leafless, slender, with 2–4 scale-like sheaths, glabrous; sheaths tubular at base of stem, bract-like above, 1.5–5 mm long, acute. *Inflorescence* laxly 3–5-flowered, subumbel in appearance, glabrous; floral bracts ovate-lanceolate, to 8 mm long, slightly punctate outside, acute, concave, caducous. *Flowers* white to whitish-cream, obliquely tubular, 1.5–1.8 cm long, not opening widely, fleshy; pedicel and ovary 2–5 mm long. Sepals connate, forming a tube, 1–1.4 cm by 6–7 mm, slightly striate with obscure irregularly warty ridge-like keels outside; free portion shallowly

3-lobed, ovate, verrucose, acute, hooded, margins subentire, vein obscure; the anterior 2 lobes separated from each other by a deep sinus; tube slightly gibbous at base. *Petals* attached on the sinus between dorsal and lateral sepals, ovate-oblong, 1.5–2 by c. 1 mm, acute, margins entire, vein obscure. *Labellum* ovate, 4.5–5 by 2–2.5 mm, apical margin irregularly denticulate, acute to obtuse, lateral margins erect, subentire, base with 2 small subglobose calli; disc with oblong-ellipsoid keels above the middle on either side of mid-vein, 5-veined. *Column* slender, 4–4.5 mm long, straight, laterally winged towards apex; rostellum lacking; stelidia c. 1.5 mm long. *Capsule* oblong-ellipsoid, with elongated pedicel.

Thailand.—CENTRAL: Nakhon Nayok [Khao Yai National Park, *Tripatch 110465 (BKF!)*].

Distribution.—Taiwan, Vietnam (type).

Ecology.—Tropical evergreen forest; c. 700 m alt. Flowering: Recorded in April.



Figure 1. A–C: *Didymoplexis micradenia* (Rchb.f.) Hemsl., Kui Buri National Park, Prachuap Khiri Khan, 22 March 2011; D–F: *Gastrodia theana* Aver., Khao Yai National Park, Nakhon Nayok, 30 April 2011. Photos: A–C by Naiyana Tetsana, D–F by Petch Tripetch.

Table 2. Comparison of morphological characters of *Gastrodia albina* T.C.Hsu & C.M.Kuo and *G. theana* Aver.

characters	<i>G. albida</i>	<i>G. theana</i>
Length of pedicel and ovary (mm)	5–25	2–5
Ribs on the tube of the connate sepals	not ribbed	distinctly ribbed

Note.— Closely related to *Gastrodia albida* T.C.Hsu & C.M.Kuo from Taiwan. The two species may be conspecific. The main character to separate the two species is the striations on the tube of the connate sepals. In *G. albida* the tube is not ribbed while in *G. theana* the ribs are slightly straight. The rostellum is lacking in both species. The tube of our collection from Khao Yai National Park is slightly striate. The older name, *G. theana* is adopted here.

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#### REFERENCES

Liu, T.S. & Su, H.J. (1978). Orchidaceae. In: H.L. Li, T.S. Liu, T.C. Huang, T. Koyama & C.E. DeVol (eds.). Flora of Taiwan 5: 973. Epoch Publishing Co., Ltd. Taiwan.

Pringle, A.M., Cribb, P.J., Chase, M.W. & Rasmussen, F.N. (2005). Genera Orchidacearum 4. Epidendroideae (Part One). Oxford University Press, Oxford.

Seidenfaden, G. (1978). Orchid Genera in Thailand VI. Neottioideae Lindl. Dansk Botanisk Arkiv 32: 179–181.