

Kiew 1995b

**A new species and section of *Didymocarpus* (Gesneriaceae)  
from Belum and Temengor, Hulu Perak, Peninsular Malaysia.**

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**Didymocarpus, Malaysia**

A New Species and Section of *Didymocarpus* (Gesneriaceae)  
from Belum and Temengor, Hulu Perak, Peninsular Malaysia

RUTH KIEW<sup>1</sup>

Abstract: *Didymocarpus dawnii* is described from mountains in Perak. It is closely allied to *D. calcareus*, *D. castaneifolius*, *D. tahanicus* and *D. venustus* and for which a new section, Sect. Venustus, is erected. *Didymocarpus pubiflorus* is reduced to synonymy with *D. venustus*.

INTRODUCTION

This beautiful new species of *Didymocarpus* was first discovered and photographed by John Dawn in 1993 in his explorations during the Malaysian Nature Society's Heritage and Scientific Expedition to Belum 1993-1994 (Davison *et al.*, 1995). The photograph has been published (Davison, 1995, p. 93) but no specimens were collected. Later, the plant was collected by G.W.H. Davison at two localities further north.

*Didymocarpus dawnii* Kiew sp. nov.

Differt a speciebus sectio Venusti floribus longioribus, colore corollo omnino purpureo.

Holotype: GWH Davison D6 Perak, north of E-W Highway, 3 March 1995. (UPM).

Low herb with a woody stem up to 27 cm long and 5 mm thick, leaves crowded at the top of stem. Indumentum on young stem, petiole and upper and lower surfaces of midrib, lower surface of lateral veins, lower half of peduncle, pedicels and calyx silky, ferruginous, of uniseriate trichomes c. 1.5 mm long and densely matted, sparse on upper surface of lateral veins and upper half of peduncle, scattered on lower surface of lamina. Lamina narrowly oblanceolate, 13-19.5 cm long and 4.2-6 cm wide, apex acute, narrowed to base, margin serrate, veins 21-29 pairs, arching upwards towards margin, 5 mm apart, midrib and veins deeply impressed above, prominent beneath, tertiary veins obscure above, plane beneath; in life upper surface glossy, grass-green for plants in sunny conditions or dark green in shady conditions where some plants have a white-grey marginal area covering between one sixth to one half of lamina, lower surface greenish white. Petiole 2-2.5 cm long and 2 mm wide.

Inflorescence a cymose panicle with a lower pair of flowers and a single branch bearing an upper pair of flowers. Peduncle 9-12 cm long, slender, branch

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2.25 cm long. Bracts in pairs, pale green, overlapping, broadly ovate, margin serrate, lower pair 19 by 10 mm, upper pair 13 by 8 mm. Pedicel 4-6 mm long. Calyx divided to base, lobes 5, narrowly lanceolate, 3.5-5 mm long and 1-1.5 mm wide. Corolla uniformly mid-violet, pendant, 5-5.5 cm long, indumentum on outer surface of long glandular trichomes, sparse; tube narrow at base and 24 mm wide dilating abruptly to 15 mm wide, flattened dorsiventrally with 2 pale yellow nectar guides on inner lower surface of tube consisting of golden yellow trichomes c. 0.5 mm long; lobes 5, upper 2, oblong, apex rounded, 5.5 x 4 to 13 x 9 mm, reflexed, lower 3 oblong, rounded-acute at apex, projecting c. 7-10 mm beyond the upper, outer two 7 x 4.5 to 10 x 8 mm, central lobe 4 x 4 to 8 x 7 mm. Stamens 2, filaments slender, 10-11 mm long, attached c. halfway up corolla tube, anthers broadly oblong, 3 by 2 mm, connivent, white, positioned within corolla tube. Ovary narrowly cylindrical, 11 by 0.75 mm, style slender 10-14 mm long, indumentum of ovary and style sparse, of short glandular trichomes, stigma a hollowed disc 1-1.5 mm diam, margin papillose and glistening. Nectary a minute ring encircling base of ovary, c. 0.2 mm high. Capsule narrowly cylindrical, 4.5-7.5 cm long and 1 mm wide.

Distribution: PENINSULAR MALAYSIA - PERAK: Hills above Sungai Halong, Temengor Forest Reserve; Grik F.R.; north of E-W Highway in stateland forest between highway and Belum F.R.

Ecology: on earth banks or hill sides at c. 1000 m altitude (down to 600 m in Grik F.R.), locally common.

Specimen: The type is the only specimen.

Notes: This species belongs to a group of *Didymocarpus* species, which includes *D. calcareus*, *D. castaneifolius*, *D. tahananicus* and *D. venustus*. It is immediately distinguished from these species by its large flower (5-5.5 cm long as opposed to 1.7-4.5 cm long in the other species) and its mid violet uniform flower colour. (Flower colour in the other species ranges from white to pale purple to rosy purple).

In its broad, foliaceous, overlapping bracts it resembles *D. calcareus* but this species has a simple cyme with 2-3 flowers. It has a similar inflorescence to that of *D. castaneifolius* (a once-branched cyme with 4 or 5 flowers) but the peduncle is shorter (9-12 cm compared with 14 cm in *D. castaneifolius*). Its leaves too have longer petioles (2-2.5 cm long) compared to those of *D. calcareus* (1-2 cm) and *D. castaneifolius* (1.3-1.7 cm).

The yellow nectar guides in the throat of the corolla are made up of long, ellipsoid, single-celled hairs with bright yellow contents - the yellow pigmentation is not found in cells of the corolla itself. Compared with species in Sect. *Heteroboëa* (Kiew 1992), which also have long tubular flowers but which have large cylindrical nectaries (0.7-1.5 mm high), the nectary of *D. dawnii* is small, only 0.2 mm high. *D. tahananicus* has a similar small nectary (Kiew 1992). The flower of *D. dawnii* is unlikely to be a pollen flower as the anthers are enclosed within the corolla tube and the stigma does not project beyond the corolla tube. No pollinators were observed visiting the flowers, so the attraction of the flower to its pollinating agent remains unknown.

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*Didymocarpus dawnii* belongs to a group of species in *Didymocarpus*, which have long, drooping, trumpet-shaped flowers on long-stalked cymose inflorescences with conspicuous persistent bracts. Ridley (1929) had already noted the similarity between *D. calcareus*, *D. castaneifolius* and *D. venustus*, which he stated belonged 'to the set of *Didymocarpus* ... in which the stem is woody and leafy at the top and the peduncles bear a pair or two pairs of foliaceous bracts, one of which is in the middle of the peduncle'.

However, in the key in his flora, Ridley (1923) had placed *D. castaneifolius* and *D. venustus* under Sect. *Didymanthus*, which he defined as 'Herbs with distinct pairs of leaves, flowers cymose, axillary usually on long peduncles, bracts very inconspicuous', but these two species key out under the lead 'Tall woody herbs with large white flowers and broad bracts'. This contradiction illustrates their anomalous position within Sect. *Didymanthus* and the fact that their conspicuous bracts distinguish them from other *Didymocarpus* species. *D. tahanicus* also belongs to this group (Kiew, 1989), although it is less closely related than the other four species. Because these species form a unified group and are clearly anomalously positioned within Sect. *Didymanthus*, a new section is described to accommodate them.

#### Section *Venustus*

Section *Venustus* Kiew sect. nov.

Intersectio generis *Didymocarpi* inflorescentia cyma, floribus longis et tubaeformis (tubo corollae 1.7-5.5 cm longo), bracteis conspicuis.

Type Species: *Didymocarpus venustus* Ridley.

Plants with woody unbranched stem or root stock, internodes long or short, lamina glabrous above, thick and rather stiff, margin serrate (or crenate), secondary veins in dried state plane above and depressed beneath, tertiary veins obscure above. Inflorescence cymose, 2- to many-flowered, peduncle long, 11-19 cm, bearing flowers well above the rosette of leaves, becoming stiff in infructescence. Bracts foliaceous, in life light green, large c. 1 by 0.2-1 cm, completely (or partially) enclosing developing flowers, persistent. Flowers trumpet-shaped, pendant, orientated in one direction. Calyx lobes long, ligulate. Corolla 17-55 mm long, tube flattened dorsiventrally so that the mouth is oval, thin and delicate, upper two lobes reflexed, lower three lobes projecting c. 1 cm beyond the tube. Stigma a wide hollowed disc. Capsule long and cylindrical.

Habitat: In hill or lower montane forest, usually c. 1,000 m (sometimes at 500 m) a.s.l., on slopes or ridges.

Notes: There are two types of bract possessed by species of this section - the broadly ovate overlapping type 6-10 mm wide (*D. calcareus* and *D. dawnii*) and the lanceolate bract 2-3 mm wide (*D. castaneifolius*, *D. tahanicus* and *D. venustus*). As Ridley (1929) had noted the lower bract pair is in the middle of the peduncle. In the young inflorescence, they are erect and appressed and cover the developing flowers.

The shape of stigma, which expands from the style to form a funnel-shaped discoid stigma about 1 mm wide, is unique for *Didymocarpus* species.

While large discoid stigmas are found in other species of *Didymocarpus* with tubular corollas (Kiew 1992), they are peltate and not hollowed.

It is notable that species in this section are found in the same rather specific habitat. Where they are found they are usually locally common, although populations of *D. venustus* may be rather sparse.

A key to the species is provided together with brief descriptions outlining their diagnostic characters.

#### Key to *Didymocarpus* Species in Section Venustus

- 1a. More or less stemless, leaves broadly oblanceolate, up to 9 cm wide, tertiary veins conspicuous beneath, margin crenate, inflorescence with up to third order branching and up to 14 flowers, corolla pale rosy-lilac with a large lemon-yellow patch coalescing across upper lobes  
4. *D. tahanicus*
- 1b. Stem 15-100 cm tall, leaves lanceolate or narrowly oblanceolate, 4-5 cm wide, tertiary veins inconspicuous, margin serrate, inflorescence with 2-7 flowers, flowers white or purple without yellow patch on upper lobes  
2
- 2a. Lower leaf pairs with internodes up to 3.5 cm long, inflorescence a simple cyme with 2-3 flowers  
3
- 2b. Lower leaves crowded, internodes very short, inflorescence a once-branched cyme with 4-5 flowers  
4
- 3a. Leaf base decurrent, margin finely serrulate, bracts lanceolate c. 3 mm wide, flowers 17-35 mm long, white with brown or yellow nectar guides  
5. *D. venustus*
- 3b. Leaf petiolate, margin deeply serrate, bracts broadly ovate c. 6 mm wide, flowers 33-37 mm long, whitish with pale purple-blue lobes and yellow nectar guides  
1. *D. calcareus*
- 4a. Plant with matted ferruginous hairs, petiole 2-2.5 cm long, peduncle 9-12 cm long, bracts broadly ovate 8-10 mm wide, flowers 5-5.5 cm long  
3. *D. dawnii*
- 4b. Plant with fine appressed hairs, petiole 1.3-1.7 cm long, peduncle 14 cm long, bracts narrowly lanceolate 2 mm wide, flower 3.5 cm long  
2. *D. castaneifolius*

#### *Didymocarpus* Species in Section Venustus

- 1. *D. calcareus* Ridley Kew Bull. (1929) 258.  
Stem woody to 20 cm long and 3-5 mm thick, internodes elongating to 3.5 cm. Lamina narrowly lanceolate-falcate, 17-20 by 4-5 cm, in life dark green and glossy above, young leaves white, secondary veins 16-22 pairs, spaced 7-10 mm apart, tertiary veins obscure beneath, midrib hairy above, margin deeply serrate. Petiole 1-2 cm, more or less glabrous. Bracts broadly ovate 14-

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15 mm by 6 mm, margin dentate. Inflorescence a simple cyme with (2-) 3 flowers, peduncle 10-11 cm long. Calyx lobes 5 by 1 mm. Corolla white with pale purple-blue lobes and yellow nectar guides in throat, 33-37 mm long, tube 5 mm broad, lobes 17 mm broad. Capsule 7 cm long and 1.5 mm thick.

Distribution: Known only from Gunung Setong, Kelantan, at c. 1000 m altitude, where it grows on steep slopes or granite rocks above streams in hill forest, locally common.

Notes: No species of *Didymocarpus* grows on limestone in Peninsular Malaysia so 'calcareus' is a misnomer. It came about as the herbarium label of the type specimen recorded the habitat as 'on limestone'. A visit to G. Setong confirms that there is a quartzite cliff (which is white as is limestone) at the foot of which a substantial population of this species grows. However, it does not grow on the quartzite itself. There is no limestone on G. Setong.

Specimens examined: *Md Nur with Foxworthy* 12192 6 March 1924 (lectotype K, iso SING); *Symington* 37724 10 Oct 1934 (SING); *Kiew* RK2732 17 May 1988 (UPM).

2. *D. castaneifolius* Ridley. J. Roy. As. Soc. Str. Br. 86 (1922) 302, Fl. Mal. Pen. 2 (1923) 514.

Stem at least 15 cm tall (maximum height unknown) and 5 mm thick. Lamina lanceolate, 13-13.5 by 4-5 cm. Secondary veins 27-30 pairs, c. 5 mm apart, minutely furfuraceous below, margin serrate. Petiole 13-17 mm long, indumentum of fine appressed hairs. Inflorescence once-branched cymose panicle with 5 flowers, peduncle 14 cm long. Bracts narrowly lanceolate-linear, 13 by 2 mm, margin dentate. Calyx lobes 7 by 2 mm. Corolla (colour not recorded), 35 mm long, tube 5 mm broad, lobes 10 mm broad. Fruit unknown.

Distribution: Known only from G. Inas, Perak, in montane forest at 1700 m altitude.

Notes: This species is known from a single locality, which has not been visited botanically for many years. Unfortunately, the labels of the two specimens do not record flower colour.

Specimens examined: *Yapp* 438 9 Dec 1899 (holo K; iso CBE).

3. *D. dawnii* (see above).

4. *D. tahanicus* B.L. Burtt. Notes Roy. Bot. Gard. Edinb. 31 (1971) 46; *Kiew* Sing. Gards' Bull. 42 (1989) 61.

syn: *D. grandifolia* Ridley J. Linn. Soc. Bot. 38 (1908) 318. *Paraboea grandifolia* (Ridley. Fl. Mal. Pen. 2 (1923) 531.

Stem to 4 cm long and 10 mm thick. Lamina broadly oblanceolate, up to 28 by 9 cm. Secondary veins 17-19 pairs, spaced c. 12 mm apart, minutely furfuraceous beneath, tertiary veins forming a conspicuous reticulate pattern beneath, margin crenate. Petiole 5-6 cm, woolly rufous, fleshy in life. Inflorescence with up to third order branching and up to 14 flowers. Peduncle 12-21 cm long and densely rufous when young, thickening to 3-4 mm in infructescence.

Pedicels c. 5 mm long. Bracts lanceolate lower pair 10 x 3 mm, upper pair 5 x 1 mm. Calyx lobes 7-9 by 2 mm, pale violet. Corolla tube pale rosy-lilac, lobes pale lilac to almost white with lemon-yellow patch coalescing across upper lobes and two yellow nectar guides in throat, 40-45 mm long, tube 3 mm wide dilating to 8 mm wide, lobes 11 mm across, contorted in pointed bud. Capsule 6.5 by 2 mm.

Distribution: Pahang - G. Tahan (Wray's Camp); Trengganu - G. Padang, at c. 1100 m a.s.l. in lower montane forest on steep banks or slopes, locally common.

Notes: *D. tahanicus* differs from the other species in this section in having short stems, fleshy petioles and far larger broadly oblanceolate leaves with a conspicuous reticulation of tertiary veins on the lower surface. The inflorescence has third order branching and can produce up to 14 flowers per inflorescence and with several inflorescences in flower simultaneously on a single individual, it is a very showy plant indeed. Its flower buds are unique in being pointed due to the contorted lobes. In fruit the peduncle and capsule are thicker than those of the other species. Otherwise it conforms to the typical characters of this section.

Specimens examined: G. TAHAN Wray & Robinson 5369 2 June 1905 (holo BM, iso SING); Holtum SFN20942 25 Aug 1928 (SING); Kiew RK2427 23 March 1989 (UPM), RK2472 28 March 1989 (UPM). G. PADANG Moysey & Kiah SFN33924 June 1937 (SING); Hislop s.n. July 1952 (SING); Whitmore FRI12700 19 Sept 1969 (KEP).

5. *D. venustus* Ridley, J. Roy. As Soc. Str. Br. 44 (1905) 51, Fl. Mal. Pen. 2 (1923) 514.

Type: Gunung Semangkok Curtis 3751 (lecto K; iso SING).

syn. nov. *Paraboea pubiflora* Ridley J. Fed. Mal. Str. Mus. 4 (1909) 51.

*Didymocarpus pubiflorus* (Ridley) B.L. Burtt. Notes Roy. Bot. Gard. Edinb. 31 (1971) 44.

Type: Robinson & Kloss s.n. G. Irau (Cameron Highlands) (holo BM).

Stem 30-100 cm tall and 4-9 mm thick, nodes conspicuous and internodes up to 3.5 cm long. Lamina lanceolate to narrowly oblanceolate, 10-17 by 4-5 cm, in life thick and fleshy, dark green and glossy above, pale beneath, young leaves greenish-white, secondary veins 20-28 pairs, c. 5 mm apart, minutely furfuraceous beneath, margin finely serrulate, base 1.5-4.5 cm long narrowing abruptly and decurrent or shallowly winged, 7-15 mm long, rough beneath, or lamina decurrent and shallowly winged to base. Inflorescence a simple cyme with 2 flowers. Peduncle 8.5-13.5 cm long and 1.5 mm thick in infructescence. Bracts lanceolate 8-14 by 3 mm, pale green, enclosing young inflorescence. Calyx lobes 8-10 by 1-1.5 mm. Corolla 17-35 mm long, white with 2 yellow or brown-orange nectar guides in throat, pubescent outside with fine brown hairs, tube 6-7 mm broad. Capsule 4-8 cm long and 1.5-2 mm thick.

Distribution: Known from several peaks in the Main Range from Bujong Melaka to Fraser's Hill, in lower to upper montane forest at 1,000-2,000 m on

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Notes: Ridley (1909) placed *Paraboea pubiflora* in *Paraboea* rather than *Didymocarpus* based on its short half-inch long flower, although he noted that its foliage 'somewhat' resembled that of *D. venustus*. Subsequently Burt (1971) reassessed Ridley's concept of *Paraboea*, and without examining specimens of *P. pubiflora*, transferred it to *Didymocarpus* Sect. *Salicini*, to which section it certainly does not belong (Kiew, 1992).

*Paraboea pubiflora* is undoubtedly a member of *Didymocarpus* and does not differ in any respect from *D. venustus*, which among the species of Sect. *Venustus* has the shortest flowers, 17-35 mm long, and which are pubescent. It is therefore reduced to synonymy with *D. venustus*.

*Didymocarpus venustus* is also the only species in this section with completely white flowers except for the nectar guides, which in some populations are brown and in others are yellow. It is also distinct in its habit, producing a thick, monopodial stem up to 1 m tall with widely spaced internodes and, in addition, it is the only species with decurrent leaves.

Specimens examined: PERAK - Bujong Melaka: Ridley s.n. Sept 1898 (SING). PAHANG - Cameron Highlands: Robinson & Kloss s.n. (BM), Kloss s.n. Nov 1901 (SING), Ridley 13597 Nov 1908 (SING), Henderson FMSMus 11114 17 June 1923 (CBE), 11176 (K); Chew CWL1270B (K, SING), Kiew RK1273 5 Dec 1983 (UPM), Anthonysamy SA438 Aug 1984 (UPM), SA924 9 Dec 1987 (UPM), Kiew RK2752 25 June 1988 (UPM); G. Benom: [collector not recorded] FMSMus Coll. s.n. 2 Aug 1925 (SING); Semangkok Pass/Fraser's Hill: Curtis 3751 May 1902 (K, SING), Ridley s.n. Aug 1904 (SING), Hose 54 July 1919 (SING), IH Burkill & Holttum 7894 26 Sept 1922 (SING), Corner SFN33188 13 Aug 1937 (SING), HMB Burkill 2347 18 Aug 1960 (SING), Ng FRI5011 29 March 1967 (KEP, SING), Kiew RK1637 17 March 1985 (UPM), RK3445 9 Jan 1992 (UPM), RK3459 23 Feb 1992 (UPM).

#### ACKNOWLEDGEMENTS

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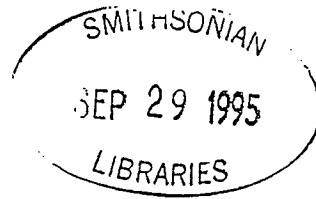
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