

STUDIES IN THE GESNERIACEAE OF THE OLD WORLD
XLIII: NOTES ON MALESIAN DIDYMOCARPUS

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ABSTRACT. *Staurogyne serrulata* and *S. macrantha*, both from the Malay Peninsula, are reduced to *Didymocarpus flavus* and *D. hispidus* respectively. *D. alternifolius*, from Indonesian Borneo, is reinstated in *Didymocarpus*, correcting its mistaken transfer to *Paraboea*, and is recorded from Sarawak for the first time. Three new species are described from Sarawak: *D. bakoensis* (allied to *D. puncticulatus* from the Malay Peninsula); *D. murutorum* (allied to *D. gracilipes*) and *D. virgineus* (allied to *D. simplex* from Indonesian Borneo and here recorded from Sarawak).

MALAY PENINSULA

In 1960 (*Notes R.B.G. Edinb.* 23:94), I catalogued the confusion that has sometimes taken place between Gesneriaceae and the genus *Staurogyne* (Acanthaceae). I mentioned there two species from the Malay Peninsula that were described by C. B. Clarke under *Staurogyne* but really belong to *Didymocarpus*. Dr D. Chatterjee (Calcutta) was to have written these up in detail, but his tragic death in 1960 prevented this. Now the relevant specimens have been kindly sent on loan from the Indian National Herbarium (CAL). The type material is in a very poor state, but I am confident that both species can be identified in *Didymocarpus* and can be relegated to synonymy there without upsetting current nomenclature. Thus:—

Didymocarpus flavus Ridley in *Journ. Linn. Soc. Bot.* 32:507 (1896) et *Fl. Mal. Penins.* 2:510 (1923).

Syn.: *Staurogyne serrulata* C.B.Cl. in *J. Asiat. Soc. Bengal* 74:642 (1908); Ridley, *Fl. Mal. Penins.* 2:563 (1923); cf. Bremekamp in *Reinwardtia* 3:245 (1955). Types: Perak, Ulu Batang Padang, *Wray* 1599 (CAL); *sine loc.*, *Scortechini* s.n. (CAL).

Didymocarpus hispidus Ridley in *J. Linn. Soc. Bot.* 32:507 (1896) et *Fl. Mal. Penins.* 2:511 (1923).

Syn.: *Staurogyne macrantha* C.B.Cl. in *Journ. As. Soc. Bengal* 74:642 (1908); Ridley, *Fl. Mal. Penins.* 2:563 (1923); cf. Bremekamp in *Reinwardtia* 3:244 (1955). Type: Perak, Larut, 4500–6000 ft, *King's Collector* 2417 (CAL).

SARAWAK

Didymocarpus alternifolius C.B.Cl. in *DC.*, *Mon. Phan.* 5:107 (1883).

Syn.: *Paraboea alternifolia* (C.B.Cl.) B. L. Burtt in *Notes R.B.G. Edinb.* 24:46 (1962).

Type: Kalimantan, W Borneo, Sebalouw, near Sambas, 15–19 x 1874, *Teyssmann* 10779 (holo. FI).

SARAWAK. First Division, Serian-Simanggang road, 70th mile, path to Gunong Gaharu, (Endap Jelutong) between Ulu Sungei Sabal Tapang and Aping, on ridge in kerangas forest, sandy soil, on rock, 360 m, 4 x 1974, *Ilias & Azahari* S. 35610 (E, SAR).

C. B. Clarke placed this species in *Didymocarpus* sect. *Paraboea*, and I incautiously transferred it with other species to the genus *Paraboea*. Professor C. Steinberg (Florence) has kindly sent me a fragment of a leaf from the type specimen and this clearly shows that the species belongs to *Didymocarpus* (sens. lat.). The leaf has a long silky indumentum of simple hairs, not the woolly interwoven indumentum of *Paraboea*, in which the hairs are often branched.

It may be noted, also, that the new material shows that *D. alternifolius* grows in a sandy acid habitat typical of *Didymocarpus*: *Paraboea* is usually found on limestone or basic rock. The short corolla, which no doubt caused C. B. Clarke to place this species in *Didymocarpus* sect. *Paraboea*, is not a reliable distinguishing character and many short flowered species, placed in *Paraboea* by Ridley, have been returned to *Didymocarpus* (see *Notes R.B.G. Edinb.* 31:43, 1971).

Didymocarpus bakoensis B. L. Burt, species nova ex affinitate *D. puncticulati* Ridley (speciei malayensis), sed corolla duplo longiore, capsula glabra valde recedit.

Herba rosulata, caule lignoso abbreviato vel tandem in plantis senioribus sub rosula paulo elongato nudo internodiis semper brevissimis in parte superiore longe setoso. *Folia* petiolo patenter hirsuto c. 3-10 mm longo instructa; lamina obovato-vel oblanceolato-oblonga, c. 3-8 × 1.5-2.5 cm, apice plus minusve rotundata, ad basin leviter angustata basi ipso levissime cordata, supra indumento duplici inter pilos longos hirtos aliis minoribus crebrioribus praedita, infra pilis longis carentibus brevissime erecto-pubescentia stomatibus in turribus elevatis, marginibus crenato-serratis, nervis supra inconspicuis subtus prominentibus. *Pedunculi* ex axillis foliorum summorum orientes, c. 2-5 cm longi, plerumque 1-flori raro usque 3-flori, breviter et patenter pubescentes, ad apicem bibracteolati, bracteolis 1 mm longis anguste lanceolatis pilosis. *Calyx* ad basin in segmenta 5 anguste lanceolata fere 2 mm longa pilosa divisus. *Corolla* bilabiatus, in toto fere 2 cm longa; tubus 1.3 cm longus sursum ampliatus; lobi subaequales c. 5 × 6 mm (mediano paulo latiore), oblongi, rotundati, 3 inferiores labium horizontale formantes, 2 superiores erecti vel leviter reflexi; palatum et tubi pars superior lineis duobus flavis conspicue barbatis ornata. *Stamina* fertilia 2; filamenta 7 mm e basi corollae orientia, 4 mm longa paulo supra basin incrassata sursum iterum attenuata, glabra, apice angulo recto flexa; antherae thecis angulo recto divergentibus 1.25 mm diametro. *Gynoecium* c. 11 mm longum, ovario anguste cylindrico in stylum aequilongum sensim attenuatum, glabrum; stigma paulo dorsoventraliter compressum, ut videtur infundibulare, papillosum. *Capsula* 2-3 cm longa, glabra, margine superiore primum dehiscens, valvis tandem solutis.

Type: Sarawak, First Division, Bako National Park, Telok Asam, 17 v 1962, Burt & Woods 1839 (holo. E; iso. SAR).

SARAWAK. First Division, Bako National Park (c. 1° 25' N, 110° 45' E): Telok Asam, c. 30 m, 16 v 1956, *Purseglove* 4878 (E), *ibidem*, 22 v 1956, *Purseglove* 5101 (E), *ibidem*, 60 m, 28 ii 1957, *Purseglove* 5563 (E); Ulu Delima, c. 60 m, *Ashton* S 17918 (E, L); Pelok Paku, sea level, 22 iv 1959, *Carrick & Enoch* JC 53 (SAR); Bukit Gandol, 18 vi 1962, Burt & Woods

1844 (E); Bukit Penmandangan, 120 m, 7 ii 1957, *Purseglove* 5601 (E); Tanjong Sapi, 30 m, 8 ii 1957, *Purseglove* 5630 (E). Selabat, 90 m, *Haviland* 882 (K).

Didymocarpus bakoensis is not uncommon in the Bako National Park. It grows on sandstone rocks in partial shade and ranges from sea-level to about 120 m. It has also been found at Selabat on the north side of the peninsula on which Bako stands, but has not yet been found outside this small area.

The flowers are pale mauve, the tube being darker towards the base. Occasionally a flower is found with the limb a deeper purplish blue. There are two well-marked orange-yellow lines on the palate running down into the throat; the lines bear a beard of coarse hairs, especially at the inner end. A plant seldom has more than one flower open at a time.

The stem is usually unbranched, but occasionally a branched plant is found. *Purseglove* notes that his no. 4878 was growing under a rock overhang and had a straggly woody stem 15 cm. long below the leaf rosette.

Didymocarpus murutorum B. L. Burtt, species nova *D. gracilipedi* C.B.Cl. affinis sed habitu erecto, foliis acuminatis argutius serratis basi imo attenuatis subsessilibus recedit; aspectu formae angustifoliae *D. crinitii* Jack, sed corolla brevi subcampanulata facile distinguenda.

Caulis erectus, lignosus, plerumque simplex, 3-27 cm altus, ad apicem tantum dense foliatus et pilosus. *Folia* c. 7-13 × 1.5-2 cm, apice breviter acuminata, marginibus argute et paulo irregulariter serrata, basi alato-attenuata et lacero-dentata, supra tenuiter pilosa venis et venulis impressis, subtus parcissime pilosa et praecipue in venis venulisque prominulis brevissime pubescens. *Pedunculi* tenues, uniflori, ad 2-2.5 cm longi, pilis longis patentibus et aliis brevioribus intermixtis induti, medio bibracteolati, seriatim in basi folii producti. *Calyx* in segmenta 1.5 mm longa pilosa obtusa divisus. *Corolla* 1 cm longa, alba, in tubo et palato purpureo-lineata, extra breviter patenter pubescens, pilis saepe glanduloso-capitatis; tubus, ad sinum laterale, 4.5 mm longus, medio 2 mm diametro sursum leviter ampliatus in palatum ventricosum 3 mm longum transiens; limbus bilabiatus; lobi 2 superiores 3 × 2.5 mm, erecti vel reflexi, 3 inferiores porrecti 4 × 3.5 mm, omnes rotundati. *Filamenta* 2 mm longa, 1 mm supra corollae basi orientia, ad basin ipsum decurrentia, glabra, apice angulo recto flexa; antherae coram cohaerentes, 1.5 mm diametro; staminodia lateralia vix 1 mm longa, dorsale minus. *Ovarium* anguste conicum, leviter arcuatum, pilis acutis patentibus dense indutum, 2 mm longum, in stylum 3 mm sursum glabrescens attenuatum; stigma terminale, stylo ad apicem leviter incrassato vix majus. *Capsula* immatura tenuis, 2 cm long.

Type: Sarawak: Fifth Division, route from Bakelalan to Gunong Murud above Sungei Konap, c. 4° N, 115° 38' E, c. 1320 m, erect on forest banks, nearly white flower faintly lined with purple in belly of tube, 23 ix 1967, *Burtt & Martin* 5172 (holo. E; iso. SAR).

This is a very distinct species, combining the erect habit of *D. crinitus*, of which it looks like a very narrow-leaved form, with the short subcampanulate corolla of *D. gracilipes*. The locality is a short half-day's walk from the Murut village of Bakelalan.

Didymocarpus simplex Kraenzlin in Mitt. Inst. Allg. Bot. Hamburg. 7:88 (1927).

Syn.: [*D. reptans* auct. non Jack; Kraenzlin in Mitt. Inst. Allg. Bot. Hamburg. 7:88 (1927)].

Type: Kalimantan, between Bukit Raja and Bukit Menabei, 1000 m, 25 xii 1924, *Winkler* 1058 (HBG).

The following material may be referred to this species in a broad sense. KALIMANTAN, Bukit Mehpit, c. 500 m, 8 xii 1924, *Winkler* 651 (HBG).

SARAWAK. First Division, Bukit Gaharu, 70 miles on Kuching-Simanggang road, 600 m, 1 viii 1962, *Burt* 2648 (E). Third Division, SE end Hose Mts, hill west of Ulu Melinau falls, c. 1200 m, 22 viii 1967, *Burt* & *Martin* 5061 (E). Fourth Division, Gunong Mulu, 1350 m, 15 vi 1962, *Burt* & *Woods* 2127 (E). Fifth Division, route from Bakelalan to Gunong Murud, c. 1580-1920 m, c. 3° 56' N, 115° 32' E, 27-28 ix 1967, *Burt* & *Martin* 5246 (E), 5275 (E).

As noted below under *D. virgineus*, *D. simplex* must be removed from sect. *Heteroboaea* to sect. *Didymanthus*. It is treated here in a broad sense, and it may well be that subdivision may in due course be thought necessary. However that can properly be deferred until much more material has become available. It may be expected that this species will be found wherever moss-forest conditions occur: this will usually be between 1200 and 1800 m; the low altitude at which it was found on Bukit Gaharu is noteworthy, but moss-forest conditions are found at a remarkably low altitude on that mountain.

In recording *Winkler* 651 as *Didymocarpus reptans* Jack, Kränzlin claimed it as a new record for Borneo. However the specimen is nothing like *D. reptans* of the Malay Peninsula and is clearly Kränzlin's own species, *D. simplex*. *D. reptans* is not known for Borneo.

Didymocarpus virgineus B. L. Burt, species nova fortasse ex affinitate *D. simplicis* Kraenzlin, sed habitu robustiore, foliis triplo majoribus distinguenda; habitu et foliis *D. pleuropogoni* similis, sed ab hoc corollis albis 1 cm tantum longis (nec flavis 4 cm longis) valde differt.

Herba erecta c. 30 cm alta; caules simplices appresse pubescentes, internodiis distinctis 6 cm usque longis. *Folia* opposita, petiolis c. 1-2 cm longis appresse pubescentibus; lamina elliptica vel interdum ovato-elliptica, 8-10 × 3-4 cm, apice acuta, basi angustata, supra parce et breviter pubescens subtus in nervis dense et appresse pubescens in pagina pilis parvis erectis praedita, marginibus breviter pilosis serrulatis. *Pedunculi* uniflori, 1-3 ex axillis foliorum summorum (basi imo petioli insidentes) orientes, 2-2.5 cm longi, appresse pubescentes, apicem versus bibracteolati. *Calyx* ad basin in segmenta 3 mm longa obtusiuscula extra pubescentia intus parce glandulosa divisus. *Corolla* c. 1.5 cm longus, candidus, extra pilis saepe glanduloso-capitatis patenter pubescens, intus glabra; tubus 1.1 cm longus, leviter curvatus, superne ampliatus et levissime ventricosus; lobi 2 superiores 3 × 4 mm, 3 inferiores 3 × 3-3.5 mm, omnes apice rotundati et leviter recurvi. *Stamina* filamentis 4 mm supra corollae basin orientibus 5 mm longis glabris; antherae thecae angulo recto divergentes, 2.5 mm diam. *Discus*

cupularis, leviter undulatus, 0.75 cm altus. *Ovarium* 6 mm longum, dense pubescens, in stylum 7 mm longum parcius pubescens attenuatum; stigma peltato-capitatum. *Capsula* 1.5 cm longa, breviter pubescens, follicularis.

Type: Sarawak, Fifth Division, route from Bakelalan to Gunong Murud, ridge above Sungei Bor, c. 4° N, $115^{\circ} 38'$ E, c. 1320 m, 25 ix 1967, *Burt & Martin* 5203 (holo. E; iso. SAR).

SARAWAK. Fifth Division, route from Bakelalan to Gunong Murud above Sungei Konap, c. 1320 m, 24 ix 1967, *Burt & Martin* 5197 (E, SAR); Long Semadoh to Long Ugong, c. $4^{\circ} 10'$ N, $115^{\circ} 35'$ E, 18 x 1967, *Burt & Martin* 5575 (E).

D. virgineus is clearly allied to *D. simplex* Kraenzl. but is much bigger in stature and leaf size, though only slightly so in flower. Kränzlin referred *D. simplex* to sect. *Heteroboea*, but plants of that section have a woody stem with apical crown of leaves. *D. virgineus* and *D. simplex* must be placed in Clarke's section *Didymanthus* which at present holds all the species of *Didymocarpus* with herbaceous stem and well-developed internodes.

D. virgineus was not uncommon on the forest floor where the canopy was not too dense, but it was only found in flower at one place. *Burt & Martin* 5575 differs somewhat in having more ovate-elliptic leaves, which were red on the underface. It must, however, be referred to this species.