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Revision of the genus *Didissandra* (Gesneriaceae).

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Revision of the genus *Didissandra* (Gesneriaceae)

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(With 4 figures)

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Abstract

In the genus *Didissandra* C. B. Clarke, in the emended sense of WEBER & BURTT (1998a), eight species are recognized, two of them new, one (*D. elongata*) with four subspecies. The genus comprises two sections: (1) sect. *Cyrtandroides* (two species; one in the Malay Peninsula, one in Borneo), and (2) sect. *Didissandra* (6 closely interrelated species; Sumatra, Borneo, Java). *D. johorica* is referred to *Henckelia*, *D. humilis* to *Staurogyne* (Acanthaceae). Keys and general information on the taxa are provided.

Zusammenfassung

In der Gattung *Didissandra* C. B. Clarke (sensu WEBER & BURTT 1998a) werden 8 Arten unterschieden, davon zwei neu und eine (*D. elongata*) mit vier Unterarten. Es können zwei Sektionen unterschieden werden: (1) sect. *Cyrtandroides* (je eine Art auf der Malaiischen Halbinsel und in Borneo), und (2) sect. *Didissandra* (6 nah verwandte Arten in Sumatra, Borneo und Java). *D. johorica* wird zu *Henckelia* gestellt, *D. humilis* zu *Staurogyne* (Acanthaceae).

Introduction

In the preceding paper (WEBER & BURTT 1998a) *Didissandra* C. B. Clarke, a conserved name with *D. elongata* as its conserved type, has been remodelled and reduced to the species that CLARKE (1883) placed in section *Elongatae* (which now becomes sect. *Didissandra*) and sect. *Cyrtandroides*. The other species that had been accommodated in the genus,

proved to be unrelated to these and were excluded. The present account revises the species representing *Didissandra* in the strict sense.

Apart from some resemblance in habit (elongate stem with leaves in distant pairs) the most essential generic character is the fruit: a thin, cylindrical-terete capsule remaining green and indehiscent for a long time. By the time of seed ripening (and drying) the fruit becomes ribbed, due to the development of strong sclerenchyma sheaths along the vascular bundles. Dehiscence is first along the dorsal and the ventral suture and later also along the sclerenchyma strands (for details see below).

Notes on characters

Habit: All species of *Didissandra*, as now defined, have a caulescent habit. *D. frutescens* and *D. anisanthera* (sect. *Cyrtandroides*) are tall, robust plants with the stem 1 m and more high. Sect. *Didissandra* includes tall, erect plants as well as low, creeping herbs.

With the exception of *D. ternata* (leaves in whorls of three), the leaves are opposite in all species and placed in distant pairs; the lamina is ovate or elliptical-lanceolate with a shortly acuminate apex in the large-leaved, tall species or the apex is acute or (in the low, \pm creeping taxa) often obtuse. Hairiness of stem and leaves (eglandular hairs; in *D. elongata* and *D. brachycarpa* also glandular hairs intermingled with eglandular hairs) is prominent in most taxa, only in *D. ternata* the leaves are glabrous above and in *D. anisanthera* they are glabrescent.

Inflorescence: The inflorescences emerge from the axils of the foliage leaves. In the large-leaved, tall species they emerge predominantly from the lower leaf axils, in the decumbent-ascending species mainly from the upper leaf axils, usually overtopping the shoot apex. In structure, they are – as usual in Gesneriaceae – pair-flowered cymes.

In the cymes of *D. frutescens* and *D. anisanthera* the peduncle is very short (at most the same length as the pedicels, in *D. anisanthera* almost absent) and bears (1)-2 - 3(-4) crowded flowers at the top (formula of 4-flowered cyme: $T_2T_1V_1T_2$; for cyme structure and formulas see WEBER 1973, 1978). Often two inflorescences arise in one leaf axil. In *D. frutescens* the second inflorescence is not placed serially, but emerges at the side of the first one (an explanation of this unusual phenomenon must await ontogenetic study).

In sect. *Didissandra* the peduncle is elongate and the flower pairs spaced. Apart from *D. triflora*, in which the branching is (at least in some of the inflorescences) dichotomous, the cymes are unilateral (pair-flowered cincinni). In *D. elongata*, *D. brachycarpa*, *D. ternata* and *D.*

sprengelii the flower number is usually around 6 (3 flower-pairs), in *D. wildeana* the inflorescence is reduced to a solitary flower or a single flower pair.

Flowers and pollination: The sepals are free to the base, in all cases very narrowly triangular, and persistent. The corolla (which is, unfortunately, still insufficiently known in the Sumatran species) always has a distinct tube. In sect. *Didissandra* the tube seems to be straight or slightly curved and gradually widening towards the mouth; the colour is white, often with a violet or purplish tinge. At the tube entrance there are (always? definitely known only in *D. triflora* and *D. elongata*) 2 yellow stripes alternating with the lower segments. At least in *D. elongata*, the lower lip is markedly longer than the upper one (cf. epithet of species name).

In sect. *Cyrtandroides* (*D. frutescens*, *D. anisanthera*) the corolla is much larger, the tube is narrow and curved in the lower part, but widens fairly abruptly in the middle. The colour is white or cream and (in *D. frutescens*) there are 2 yellow bars on the lower lip running into the mouth. Corolla-form and coloration recall strongly that of some species of *Didymocarpus*, but *Didissandra* can be easily told apart by the four stamens.

In *D. anisanthera* the posterior and anterior anthers are markedly unequal in size. Complete reduction of the posterior pair may indeed lead to a diandrous flower and this obviously has happened in *D. triflora*.

D. triflora was described by CLARKE (1883) as '*Didissandra ? triflora*'. CLARKE (l.c.: 69) was uncertain about the stamen number ['Stamina 4 (?) fertilia']. BURTT (1962), showed that the stamen number is in fact 2, and he transferred the species to *Didymocarpus*. However, the habit, the fruit structure and the seed characters suggest that the species belongs to *Didissandra*.

In all species a disc is well developed, forming a conspicuous cylindrical cup around the ovary. It is persistent and can be plainly seen on the fruits.

No observations have been made on pollination so far, but there is little doubt that the flowers are nectar-flowers and pollinated by insects (bees).

Fruits: The fruit is of a very special type and of great importance in distinguishing the genus from other tetrandrous genera as well as from *Didymocarpus*. It is a thin, cylindrical capsule, which is straight or (*D. frutescens*) slightly curved. It is held in straight continuation of the

pedicel ('orthocarpic'). Usually the pedicel widens to some degree below the fruit.

The capsule is green and terete for a long time, but in the ripe and dry condition appears distinctly ribbed. The ribs are due to the postfloral development of prominent sclerenchyma sheaths around the vascular bundles of the carpels. In *D. frutescens* the cells of the two innermost layers develop into long sclerenchyma fibres, in *D. elongata* only those of the subepidermal layer. Only the cells located along the dorsal bundles of the two carpels remain thin-walled. These cells form the lines of primary dehiscence. The two capsule valves usually do not separate completely, but remain joined in the distal part; moreover, they later break up into narrow lamellae along the sclerenchyma strands. After complete dehiscence the fruit may appear as a bundle of strands and lamellae, often still joined in the upper part and apparently holding the seeds between the longitudinal elements. Seed shedding seems to take a long time. The sepals as well as the cup-shaped disc are persistent and still found on the old fruits (for details and illustrations see WEBER & BURTT 1998a).

Pollen: The pollen morphology of *D. frutescens* was studied by E. LUEGMAYR (1989, 1993). The grains are spheroidal, tricolpate, with a granulated colpus membrane. The tectum is finely reticulate (small lumina), the muri are rather broad and smooth.

Seeds: Seed coat morphology of all taxa except *D. anisanthera* and *D. ternata* was studied by SEM. There are two types:

In *D. frutescens* (sect. *Cyrtandroides*) the side walls of the testa cells are thickened and the surface wall possesses striae of variable orientation (cf. SONTAG & WEBER 1998, Fig. 1a).

In sect. *Didissandra* there are conspicuous roundish knobs (sometimes with an apical depression) along the contiguous walls. They may be isolated from one another or form pig-tail-like ridges (l. c.: Fig. 2). In some specimens of *D. elongata* ssp. *elongata* a confluence of the knobs to thick, winding mounds has been observed (l. c.: Fig. 2d).

Chromosome number: So far only the chromosome number of *D. frutescens* is known ($2n = 20$; KIEHN & al. 1998). It is notable that the number is markedly different from the Malayan species formerly included in the genus (RIDLEY's sect. *Speciosae*: $n = 17$, $2n = 34$), now placed in the new genus *Ridleyandra*.

Distribution

Sect. *Didissandra*: Sumatra, Borneo, Java. Sect. *Cyrtandroides*: the northwestern part of the Malay Peninsula and Sarawak.

Ecology

The species of *Didissandra* are plants of the primary forest, found in lowland and montane forest, in shady places on slopes, earth banks and along streams.

Affinities of the genus and the species

Affinities of the genus are still obscure. In particular the presence of four stamens apparently indicate no close affinity with the species that were formerly included in *Didissandra* (now the genera *Ridleyandra* and *Raphiocarpus*).

The eight species recognized in the present revision can be distributed between the two sections *Didissandra* (previously sect. *Elongatae* C. B. Clarke) and *Cyrtandroides* C. B. Clarke. The latter was monotypic (with *D. frutescens*) until BURTT (1982) added a second species, *D. anisanthera*. (RIDLEY's *D. johorica* does not belong here, see 'excluded species' at end). The two species are tall, erect, somewhat woody plants, with large, acuminate leaves, large flowers (see above) and 7 - 9 cm long fruits. Characteristic are the short (to nearly absent) peduncles bearing crowded flowers at the top.

Sect. *Didissandra* is more heterogeneous, as it includes large-leaved, tall-erect to small-leaved, low-creeping plants. Common features are: small corolla, fruits medium-sized (around 4 cm) to very short (1 - 1.5 cm), (mostly) unilateral cymes, seeds with very special ornamentation (see above).

With regard to the structure of the androecium, it might seem tempting to place *D. triflora* (with 2 stamens, the posterior ones being aborted) in sect. *Cyrtandroides* after *D. anisanthera*, in which the posterior stamen pair is distinctly smaller than the anterior one. However, in the habit and fruit-length *D. triflora* resembles much more *D. sprengelii*, so it seems that a general tendency for reduction in stamen-number has affected *D. triflora* and *D. anisanthera* independently and to a different degree.

The two tall species *D. triflora* and *D. sprengelii* can be contrasted to the remaining ones, which have decumbent-ascending (*D. elongata* ssp.

montana even ± completely creeping) stems. The (little known) *D. ternata* is very close to *D. elongata*, the newly described species *D. brachycarpa* and *D. wildeana* again form a closely related pair, distinguished from the former species by the very short fruits.

Taxonomic treatment

Didissandra C. B. Clarke, in A. & C. DC., Monogr. phan. 5/1: 65 (1883) – nom. cons. p.p. (excl. sect. *Boeoides* and sect. *Stilpmothrix*); Hook.f., Fl. Brit. Ind. 4: 355 (1844), p.p. (excl. sect. *Boeoides*)

= *Ellobum* Blume, Bijdr. 746 (1826) – nom. rejic.

Type: *E. montanum* Blume

≡ *Didissandra montana* (Blume) Bakh.f.

≡ *Didissandra elongata* ssp. *montana* (Blume) A. Weber & B. L. Burt

Conserved type: *Didissandra elongata* (Jack) C. B. Clarke

The sections

(1) *Didissandra* sect. *Didissandra*

≡ sect. *Elongatae* C. B. Clarke, Monogr. phan 5/1: 67 (1883).

≡ sect. *Eudidissandra* K. Fritsch, in Engler & Prantl, Nat. Pflanzenfam. IV/3b: 146 (1894) – nom. illeg.

Type: *Didissandra elongata* (Jack) C. B. Clarke

(2) *Didissandra* sect. *Cyrtandroides* C. B. Clarke, Monogr. phan 5/1: 66 (1883)

Type: *D. frutescens* (Jack) C. B. Clarke

Key to the sections and species

- 1 Corolla large (4,5 - 6 cm); fruit 7 - 9 cm long; peduncle short (1 - 2 cm) (sect. *Cyrtandroides*)
- 2 Stem (at least upper part), petiole and lamina of young leaves densely coppery-brown hairy; flowers with 4 equal anthers
 1. *D. frutescens*
- 2* Stem glabrous, leaves glabrescent; anthers unequal, the posterior pair distinctly smaller
 2. *D. anisanthera*

1* Corolla small (1 - 2 cm); fruit at most 4,5 cm long; peduncle 4 - 6 cm (sect. *Didissandra*)

3 Flowers solitary or 2 together; peduncle and pedicels without glandular hairs; fruit c. 1 cm long, somewhat fusiform, glabrous

8. *D. wildeana*

3* Flowers in several pairs; fruit 1,5 - 4,5 cm long, slender, hairy

4 Fruit 1,5 cm long, rather densely hairy

7. *D. brachycarpa*

4* Fruit 3,5 - 4(-4,5) cm long, sparsely hairy

5 Leaves in whorls of three; upper surface glabrous

6. *D. ternata*

5* Leaves opposite, hairy on both sides

6 Stamens 4, inflorescences of unilateral cymes

7 Stem ± erect, upper part densely villous with long white hairs; leaf lamina to 15 cm long, apex acuminate; inflorescences mainly from the lower leaf axils

3. *D. sprengelii*

7* Stem creeping or ascending-suberect, usually curved in the lower part, upper part pubescent; lamina 3 - 8 cm long, apex acute or obtuse; inflorescences mainly from upper leaf-axils

5. *D. elongata*

6* Stamens 2, inflorescences (at least partly) dichotomously branched

4. *D. triflora*

Sect. *Cyrtandroides*

1. *Didissandra frutescens* (Jack) C. B. Clarke, in A. & C. DC., Monogr. phan. 5/1: 67, t. 7 (1883); C. B. Clarke, in J. D. Hook., Fl. Brit. India 4: 355 (1884); Ridl., J. Linn. Soc. 32: 502 (1896); Ridl., J. Straits Branch Roy. Asiat. Soc. 43: 21 (1905); Ridl., in King & Gamble, J. Asiat. Soc. Bengal 74 (2), extra no. 742 (1908), reimp. in King & Gamble, Mat. Fl. Malay Penins. 2 (Gamopet.) no. 21: 950 (1909). Ridl., Fl. Malay Penins. 2: 502 (1923). Henderson, Malay. Wild Flowers 2: 343 (1950; reimp. 1974)

≡ *Didymocarpus frutescens* Jack, Malay. Misc. 1/2: 5 (1820); Jack, Trans. Linn. Soc. 14: 39 (1823); Spreng., Syst. veg. (ed. 16) 2: 837 (1825); G. Don, Gen. hist. 4: 659 (1838); R. Br., Cyrtandreae 119 (1839); R. Br.,



a

Fig. 1. *Didissandra frutescens*. a Holotype (Jack s.n., G), b Reproduction of CLARKE (1883), Tab. 7 (drawn by W. H. FITCH); this gives a somewhat wrong impression, as the plant is not as floriferous and the axis looks too stout and erect-growing.



Didissandra frutescens, C. C. Clarke.

Fig. 1b

in Bennett & Brown, Pl. jav. rar. 119 (1840); A. DC., Prodr. 9: 265 (1845); Miq., Fl. Ned. Ind. 2: 726 (1858);

≡ *Henckelia frutescens* (Jack) Spreng., Syst. veg. (ed. 16) 4/2 (Cur. post.): 13 (1827); A. Dietr., Sp. pl. (ed. 6) 1: 569 (1831); D. Dietr., Syn. pl. 1: 42 (1839).

Type: 'Sumatra', JACK s.n. (G-DELESS holo & iso).

Vernacular name: Tarom hutan (HANIFF & SHAH 13256, SING; HENDERSON 1950/74).

Etymology: *frutescens* = becoming shrubby.

Description: Rather tall, lignescent plant, 0.5 - 1.5 m high; stem erect to trailing, appressed hairy. Leaves opposite, in distant pairs; petiole 3 - 10 cm long, hairy; lamina 15 - 30 x 5 - 12 cm, elliptic-lanceolate, apex acute to shortly acuminate, base cuneate, merging gradually into the petiole, margins minutely crenulate-dentate; side nerves 10 - 20 pairs; upper surface sprinkled with fine hairs, lower with appressed tawny silky hairs, especially on the nerves and reticulations. Inflorescences axillary, peduncle short, 1.5 - 2 cm, bearing (1-) 3 (-4) flowers at the top. Pedicels 1.5 cm long. Sepals free to base, lilac to dark-purple, hairy, narrow lanceolate. Corolla white, with two yellow streaks or a broad yellow band in the mouth, c. 4.5 cm long; tube funnel-shaped, curved, pubescent; lobes rounded. Stamens 4, filaments curved in the middle, anthers cohering in pairs. Ovary glabrous; style pilose; stigma sub-bilobed. Capsule slender, cylindrical, 8 - 10 cm long, thin (c. 1.5 mm in diam.), glabrous, with longitudinal ribs.

Illustrations: Fig. 1a [type specimen], 1b [habit; reproduction of CLARKE 1883, Tab. 7]. HENDERSON 1950/74: Fig. 321 A, B [fruiting shoot and flower].

Distribution: Northwestern quarter of the Malay Peninsula (Penang, Perak).

The inclusion of Sumatra in the distribution by CLARKE (1883) (copied by FRITSCH 1895 and RIDLEY 1905, 1909, 1923) seems to have come from the (type) specimens labelled "Jack, Sumatra" in herb. Delessert (now G-DELESS). These were probably duplicates sent home by JACK from Sumatra, but JACK himself never suggested that the species was collected anywhere but on Penang.

Notes: *D. frutescens* is a fairly common species that can be easily found on Penang Hill and the lower parts of Maxwell's Hill in Perak. The large, infundibuliform, white flowers (with two yellow bars in the mouth) resemble closely those of some species of "Malesian *Didymocarpus*" (now *Henckelia*, WEBER & BURTT 1998b), but have four stamens in-

stead of two. The specimen HANIFF & SHAH 13256 tell us that the roots are used in or after confinement.

Specimens (selection): Peninsular Malaysia. Penang: Penang Hill (BURKILL 3320, SING; CURTIS 828, BM, K, SING; KIAH SFN 35343, K, SING; KIEW RK 1604, KEP; RIDLEY s.n. VI. 1893; SINCLAIR SFN 39325, E, SING; WALLICH 780, E, K; WEBER 840803-1/7, WU); Penang, Pantai Aceh, SYMINGTON 27795 (SING).

Perak: Lumut Dindings, RIDLEY 7171 (SING). - Batu Kurau, HANIFF & SHAH 13256 (SING). - Taiping Hills (Maxwell's Hill, Bukit Larut): HENDERSON 10449, 11606 (SING), HARDIAL & SAMSURI 310 (K, SING), WRAY jr. 1723 (SING), WEBER 840805-1/2 (WU). - Gunung Bubu F. R., DING HOU 635 (K, KEP, L). - Pondok Tanjong, BURKILL 13232 (SING), BURN-MURDOCH 198 (K, SING). - Keledang Saiong F. R., TACHUN 33638 (SING). - Near Kinta River, KING's coll [KUNSTLER] 837 (SING). - Tapah, WRAY jr. 826 (SING). - Bedar Tapah, RIDLEY s.n., XI. 1908 (SING). - Sungai Siput, HANIFF & NUR 6950 (K, SING).

2. *Didissandra anisanthera* B. L. Burt, Bot. J. Linn. Soc. 85: 23 (1982).

Type: Borneo, Sarawak, Gunung Mulu National Park, Melinau Gorge pathway, 22. VI. 1962, BURTT & WOODS B. 2215 (holo E).

Etymology: see Notes.

Description (BURTT 1982): Herb up to 1 m high, stem simple with distant nodes, glabrous. Leaves opposite, broadly elliptic, shortly acuminate, unequal, e.g. the larger ones with a petiole 80 mm long and a lamina 230 x 100 mm, c. 11 lateral nerves, and the smaller with a petiole 25 mm long and a lamina 125 x 65 mm, c. 8 lateral nerves; at first clothed with a few short, appressed hairs on the nerves and margins and between the nerves with short yellow glands with a bicellular head, soon becoming glabrous, the margins entire. Flowers 3 - 4 axillary, peduncle almost absent; pedicels c. 20 mm long, borne between two linear-bracteoles 3 mm long. Calyx divided almost to the base into 5 linear-lanceolate acute segments, 3.25 mm long, 0.75 mm broad at the base. Corolla c. 55 - 60 mm, glandular-pilose on the outside; tube c. 43 mm long, narrow for the lowest 18 mm, abruptly opening out above; the upper lip 7 x 15 mm, bilobed; the lower lip 15 x 20 mm, trilobed. Lower stamens arising 25 - 30 mm above the base of the tube, filaments 13 - 16 mm long, bearing a few hairs towards the apex, anthers 1 mm long, suborbicular; the lower stamens arising 25 - 30 mm above the base of the tube, filaments 13 - 16 mm long, with a few hairs towards the top, anthers 1 mm long, suborbicular; upper stamens arising 25 mm above the base of the tube, filaments 8 mm long, glabrous, anthers smaller. Disc cylindrical, 2 mm high. Ovary 15 mm long, cylindrical with a style of similar length,

shortly glandular-pilose towards the apex, stigma small. Fruit a capsule c. 75 - 90 mm long, 1 mm diam., glabrous, dehiscent on both sides.

Distribution: Borneo (Sarawak: G. Mulu National Park and Hose Mts.).

Notes: The name refers to the fact that the anthers are of unequal size: those of the posterior stamens are distinctly smaller.

Specimens: Type (see above). - Sarawak, G. Mulu National Park, Sg. Langsat, ARGENT & al. 685 (E). - S. Hose Mts., Sg. Melinau, c. 2°6' N, 113°38' E, BURTT 12917 (E, SAR, WU). - Ulu Sg. Balleh, Bukit Batu Tiban, 1200 m, YU & al. S. 52155 (E, K, SAR).

Sect. *Didissandra*

3. *Didissandra sprengelii* C. B. Clarke in A. & C. DC., Monogr. phan. 5/1: 68 (1883).

[*Didymocarpus sprengelii* Korth., ms.], C. B. Clarke in A. & C. DC., Monogr. phan. 5/1: 68 (1883), in syn.

Lectotype (chosen here): Sumatra, Padang, ad Ayer manciur (Ajer mantjoer), c. 360m, VIII.1878, BECCARI 679 (lecto K!, iso BM!, FI).

Etymology: The epithet commemorates K. P. J. SPRENGEL (1766 - 1833), the author of the 'Systema vegetabilium' ed. 16.

Description (floral characters adopted from CLARKE 1883): Erect plant, stem 30 - 50 cm, (always?) unbranched, in the upper part densely villous from white, patent, 5 - 7 mm long hairs. Leaves opposite, subequal; petiole 4 - 5 cm, lamina c. (10-)15 x (5-)8 cm, elliptical-lanceolate, base unequally cuneate, apex acute-acuminate, margin serrulate, c. 10 pairs of side nerves; hairy on both sides. Peduncle c. 5 cm, with 2 - 5 flower pairs, bracts 2 mm, linear. Pedicel c. 5 mm, slightly pilose. Sepals free to base, 2 mm long, linear, glabrescent. Corolla tubular, straight, pubescent outside, lobes subequal. Stamens 4, anthers divaricate. Ovary and style nearly glabrous; disc short cylindrical. Capsule thin, terete, c. 35 mm long, minutely pilose.

Distribution: Sumatra (West Sumatra: Padang).

Ecology: Primary rain forest; details unknown.

Notes: *D. sprengelii* seems to be a robust and tall, ± erect plant. It is probably most closely related with *D. triflora* from Borneo, which has only 2 stamens. In habit and in having large-acuminate leaves and 4 complete stamens, *D. sprengelii* is perhaps the most primitive species of sect. *Didissandra*.

In contrast to *D. elongata*, the stem is (at least in the upper part) villous with long white hairs and the leaves are much larger (lamina c. 15 cm long) and acuminate. Unfortunately, few collections are available, none of them recent. BECCARI 679 is chosen as lectotype as neither of KORTHALS' original specimens is precisely localized.

Specimens: Type (see above). - Sumatra, s. loc., s. dat., KORTHALS 172 (L; syntype). - Sumatra, s. loc.; s. dat., KORTHALS 243 (L; syntype).

4. *Didissandra triflora* C. B. Clarke in A. & C. DC., Monogr. phan. 5: 69 (1883) - as '*D. ? triflora*'

≡ *Didymocarpus triflorus* (C. B. Clarke) B. L. Burtt, Notes Roy. Bot. Gard. Edinburgh 24: 43 (1962).

Lectotype (chosen here): Kalimantan, W. Borneo, Landak, TEYSMANN 11217 (FI, iso BO, L).

Etymology: triflorus = three-flowered.

Description: Stem 30 - 90 cm, suffruticose, unbranched, pilose. Leaves opposite; petiole to 15 cm, hairy; lamina elliptical, c. 15 x 5 cm; base unequally cuneate, apex acute-acuminate, margin crenulate-serrulate, c. 10 pairs of side nerves. Peduncle c. 2 cm, hairy; bracts linear, small. Pedicel 5 - 10 mm. Sepals free to base, 6 - 7 mm long, narrow triangular-linear, hairy. Corolla white or pale violet with a yellow throat, tubular-infundibuliform, lobes subequal. Stamens 2. Ovary glabrous, style minutely hairy. Capsule c. 4 cm long, thin, terete.

Distribution: Borneo (Sarawak).

Notes: CLARKE (1883) placed the species in *Didissandra* with doubt and put a question mark against the number of stamens. BURTT (1962), when dissecting the specimen HAVILAND 216/275, found only two stamens and, therefore, transferred the species to *Didymocarpus*. However, the general habit, and especially the fruit structure suggest that the species has - despite its diandrous flowers - its correct place in *Didissandra*. This opinion is reinforced by the fact that in *D. anisanthera* (also occurring in Borneo) the posterior anthers are distinctly smaller than the anterior ones and obviously exhibit the first step of reduction. However, *D. triflora* cannot be directly derived from that species. In habit (erect stem, according to BROOKE 9588 to 0.9 m tall, large acuminate leaves), in the position of the inflorescences (in lower leaf axils) it approaches the Sumatran *D. sprengelii*.

Specimens: Borneo: Kalimantan: W. Borneo, TEYSMANN 11212 (FI, L); TEYSMANN 11217 (FI, BO, L; lectotype).

Sarawak: 1st. Div., Penkalen Ampat, HAVILAND 216/275 (SAR); 1st. Div., Krusin, Serian, 17.I.1955, BROOKE 9588 (G, L); Senah Negri, Pada-

HERB. HORT. EDINB.



a

Fig. 2. a *Didissandra elongata* ssp. *elongata* (DE VOGD & VERMEULEN 7565, E); b *D. elongata* ssp. *minor* (BUNNEMEIJER 4333, L), the specimen is somewhat transitional to ssp. *elongata*; c *D. elongata* ssp. *minor* (BURLEY, TUKIRIN & al. 1417, E); d *D. elongata* ssp. *minor* (BURLEY, TUKIRIN & al. 1147, E).



b

Fig. 2b

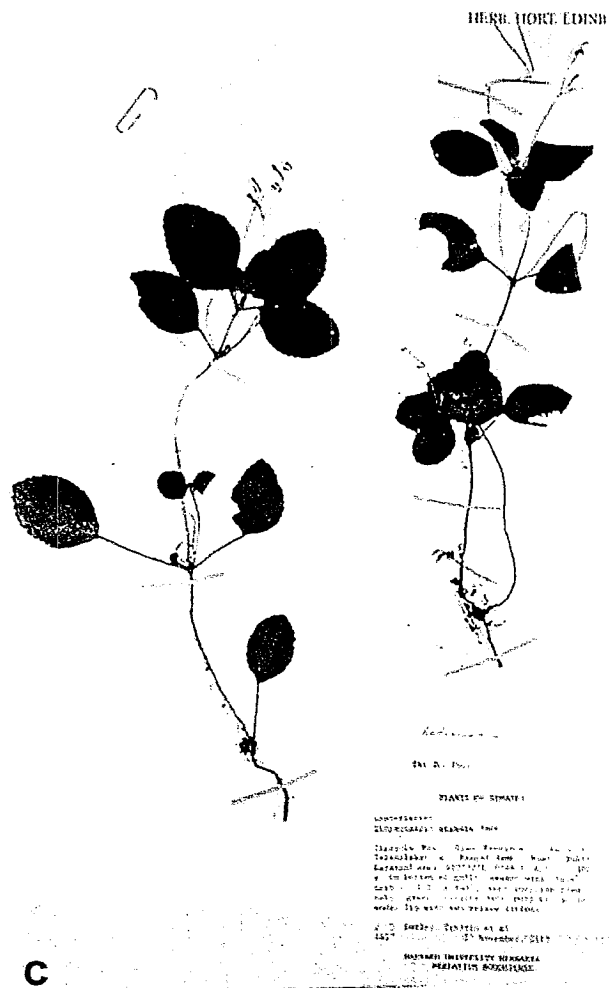


Fig. 2c



Fig. 2d

wan, 42 miles from Kuching, ridge running E/W about 3 miles from Senah Negri, OTHMAN, JAMES & JUGAH S. 31604 (K).

5. *Didissandra elongata* (Jack) C. B. Clarke in A. DC., Monogr. phan. 5/1: 67 (1883); Bakh.f., Fl. Males. Bull. 1/3: 73 (1948); B. L. Burt, Notes Roy. Bot. Gard. Edinburgh 21: 197 (1954); B. L. Burt, Notes Roy. Bot. Gard. Edinburgh 31: 40 (1971).

≡ *Didymocarpus elongatus* Jack, Trans. Linn. Soc. 14: 37 (1823); reimp. Calc. J. nat. Hist. 4: 56 (IV.1843); Spreng., Syst. veg. 2: 837 (I - V 1825); G. Don, Gen. syst. 4: 659 (1838); R. Br., Cyrtandreae 119 (1839); R. Br., in Bennett & Brown, Pl. jav. rar. 119 (1840); R. Br., Ann. Sc. nat. Bot., ser. 2, 13: 165 (1840); A. DC., Prodr. 9: 266 (1845); Miq., Fl. Ned. Ind. 2: 726 (8.IV.1858).

≡ *Henckelia elongata* (Jack) Spreng., Syst. veg. 4/2: 13 (1827). A. Dietr., Sp. pl. 1: 571 (1831); D. Dietr., Syn. pl. 1: 42 (VII. 1839).

Type: "Found on Pulo Bintangor, an island lying off the west coast of Sumatra" [prot. W. JACK].

JACK's specimen was apparently lost by the fire on the "Fame" and the selection of a neotype is necessary. Due to the still somewhat insufficient knowledge of the species (see below) the formal nomination of a neotype should wait until a good specimen from P. Bintangor becomes available. For the sake of authenticity, JACK's description is reproduced below.

Etymology: The name refers to the elongated lower lip of the flower.

Description (JACK 1825, as *Didymocarpus elongata*): "A small erect herbaceous plant, about half a foot high, pilose. Leaves opposite, petiole, about five inches long, ovate, acute at both ends, serrated, papillose, and pilose with rather long hairs above, villous beneath with short hairs. Petioles channelled above, and ciliate along the edges of the furrow. Stipules none. Peduncles axillary, solitary, bearing a unilateral spike rather longer than the leaf. Pedicels in pairs, each pair rather remote. Bracts linear, at the base of the pedicels. Calyx five-cleft; laciniae linear, acute, erect, tomentose, as well as the whole spike. Corolla tubular, somewhat curved, white, with a purplish tinge, slightly tomentose without, bilabiate; upper lip two-lobed; lower rather elongated, three-lobed. Stamina four, didynamous, each pair connected by their anthers. Anthers two-lobed, reniform. Style shorter than the stamina. Stigma thickened, emarginate. Capsule long, siliqua-shaped, pointed, two-valved, two-celled; cells bipartite (pseudo-quadrilocular): seeds attached to the revolute edges of the placentae, which form the pseudo-partitions of the cells, numerous, small, not winged."

Notes: *D. elongata* is an extremely variable plant. Three species, *D. elongata* (Jack) C. B. Clarke, *D. minor* Ridl. and *D. montana* (Blume) Bakh.f., are united here under that name and treated as of a single species. Another subspecies is described as new. This has been done to call attention to the fact that there is considerable overlap in habit, shoot and leaf dimensions, but it allows the retention of the names (at subspecies level, as there is obviously some geographical correlation). The four subspecies seem to form a cline from large-leaved, distinctly ascending to small-leaved, creeping plants (Fig. 2, 3). For discussion of the problems involved see notes under the particular subspecies.

CLARKE's var. *beccarii* ("calycis segmentis longis 3 mm") does not merit taxonomic recognition and is here reduced to synonymy with typical *D. elongata*.

Key to subspecies:

- 1 Lamina of largest leaves c. 8 cm long
- 2 Stem ascending, several dm high; lamina ovate-elliptical, apex usually acute, shortly hairy (hairs 1 - 1.5 mm long) ssp. *elongata*
- 2* Stem short, ± creeping; lamina rather broadly ovate, apex broadly acute or obtuse, villous (hairs to 3 mm long) ssp. *burleyi*
- 1* Lamina 3 - 5 x 2 - 3 cm, apex acute or obtuse
- 3 Stem and side branches slightly ascending, inflorescences born in the upper leaf axils, ± overtopping the shoots ssp. *minor*
- 3* Stem ± creeping throughout, rather stout, villous; inflorescences also in proximal leaf axils, not overtopping the shoots ssp. *montana*

5a. *D. elongata* ssp. *elongata*

= *Didissandra elongata* (Jack) C. B. Clarke var. *beccarii* C. B. Clarke in A. & C. DC., Monogr. phan. 5/1: 67 (1883).

Syntypes: Sumatra, Padang, BECCARI 927 (L, K, FI); BECCARI 946 (BM, FI).

= *Didymocarpus violascens* Ridl., Kew Bull. 1925: 87 (1925) - (BURTT 1971).

Type: Lubuk Tandai, near Benkoelen [Bengkulu]; III.1922, BROOKS 7185 (K).

Type: as for species.

Description: Stem decumbent-ascending, with fibrous roots at and between the nodes of the basal part, 15 - 40 cm long, shortly hairy. Leaves in distant pairs; petiole 2 - 4 cm long, hairy; lamina (5-) 7 - 8 x (2,5-) 3,5 - 5 cm, ovate-elliptical(-lanceolate), base cuneate, apex acute, margin finely serrate, hairy on both sides and on margin. Inflorescences emerging from the axils of the upper leaf pairs; peduncle 5 - 8 cm, purplish, sparsely hairy; flowers paired, pairs (2-) 3 - 5, 1 - 2 cm distant, arranged in straight line. Sepals linear to narrow-triangular, 1 - 3 mm long. Corolla narrow-tubular-infundibuliform, colour pinkish white, light lilac or purplish, 10 - 13 mm long, limb bilabiate, lower lip distinctly longer than upper. Stamina 4, didynamous, coherent in pairs. Style with slightly bilobed stigma, ovary elongate, shortly hairy. Capsule elongate, 35 - 45 mm long, ribbed.

Illustration: Fig. 2a [herbarium specimen].

Distribution: Sumatra (Prov. West Sumatra, Benkulu).

Notes: The specimens cited below and taken as basis for the above description match fairly well with that given by JACK. Characteristic features are the rather long and robust ascending stem portion and the leaf form and size (lamina ovate-elliptical, acute; on average 7 - 8 x 4 - 5 cm; JACK's measurement of 5 inches apparently includes the petiole). The inflorescences emerge from the upper leaf-axils, bear several flower pairs in a unilateral cyme, and usually overtop the shoot tip. As to transitions to the small-leaved and more creeping ssp. *minor* see notes under that subspecies.

The distribution of ssp. *elongata* seems to be confined to the mountain area on the West coast of Sumatra, from Padang southwards (Barisan Range).

Specimens (those marked by an asterisk are transitional to ssp. *minor*): ? Sumatra ("Java"), s. dat., HORSFIELD 14 (BM). - Sumatra, HORSFIELD s. dat., s. n. (BM). - KORTHALS s. dat., s. n. (L: 935.287 33)*. - KORTHALS s. dat., s. n. (L: 947.153 149)*. - (? KORTHALS) s. loc., s. dat., s. coll. (L: 935.287 14).

West Sumatra: Provincia di Padang; a Sungei bulu, \pm al livello del mare; X. 1878, BECCARI 927 (L, K, FI), 946 (BM, FI - syntypes of *D. elongata* β *beccarii* C. B. Clarke). - Padang, Bungus, Mt. Telug Taro, \pm 40 m; 3. VI. 1953, BORSSUM (Padang Exped.) (A, K, L). - Barisan Range, Air Sirah, on watershed above Padang, c. 0°57'S 100°32' E, alt. 1100 m; 9. V. 1985, DE VOGEL & VERMEULEN 7565 (E, L). - Panti Nature reserve, \pm 200 m; 12. VI. 1953, BORSSUM 1738 (Padang Exped.) (L). - Kayujao, SE of G. Talang, Kabupeten Solok, 1°00-01' S, 100°38-39' E, 1250 - 1300 m; 3. II. 1989, NAGAMASU 3533 (KYO, L). - Ulu Gadut, Bt. Gajabuih, about

15 km E from Padang city; 400 - 650 m; 10. II. 1981, Hotta & OKADA 184/9 (L, ex KYO). - Promontory of Mt. Bongsu, W of Dalok, 1000 m; 25. VI. 1953, BORSSUM 2343 (Padang expedition) (BO, K, L).

Benkulu: Lubuk Tandai, near Benkoelen [Bengkulu]; III. 1922, BROOKS 7185 (K; type of *Didymocarpus violascens*)*. - Lebong; 22. X. 1931, DE VOOGD 1281 (BO, L). - Kepahiang; 11. II. 1932, DE VOOGD 1246 (BO, L).

5b. *D. elongata* ssp. *burleyi* A. Weber & B. L. Burt, ssp. nov.

Type: Sumatra, Riau, Tigapulu Mts., 5 km W of Talanglakat, on Rengat-Jambi-road; Bukit Karampal area; 102°32' E, 0°46' S, alt. c. 100 m; 4. XI. 1988, BURLEY, TUKIRIN & al. 1139 (holo L, iso A, BO, E).

Etymology: named after E. BURLEY, the collector of the plant.

Diagnosis: A ssp. *elongata* habitu humili-prostrato, foliis late ovatis et indumento villosio differt.

Description: Stem short, c. 10 cm, \pm creeping; internodes 2 - 4 cm; densely villose. Leaves opposite; petiole 2 - 4 cm; lamina of largest leaves c. 8 x 6 cm, rather broadly ovate, base broadly cuneate, apex acute-obtuse, margin indistinctly crenate-serrate; long-hairy on both sides and at the margin, hairs (in sicco) brownish. Inflorescences from the upper leaf pairs, nearly as long as subtending leaves. Inflorescence and fruit characters as in ssp. *elongata*. Flowers not seen.

Illustration: Fig. 3a [herbarium specimen].

Distribution: Sumatra (Riau: Tigapulu mts.).

Notes: The subspecies is based on one of the three collections of "*D. elongata*" obtained by BURLEY & al. in the Tigapulu mountains, an isolated mountain group in S. Riau lying between the Barisan Range and the East coast. While the other two collections represent clearly ssp. *minor* (even with extraordinarily small leaves), the collection 1139 includes plants with large, broad leaves and a low creeping habit. Another conspicuous character is the long, villous indumentum. The plants fit neither in ssp. *elongata* nor in ssp. *minor* or *montana*.

Specimens: Type (see above).

5c. *D. elongata* ssp. *minor* (Ridl.) A. Weber & B. L. Burt, stat. nov.

= *Didissandra minor* Ridl., Kew Bull. 1926: 75 (1926).

Type: [West Sumatra], [Pulau] Siberut, BODEN-KLOSS 10591 (K).

Etymology: minor = smaller.

Description: Stem creeping, rooting, distal part and side branches eventually ascending, 20 - 30 cm long, internodes 2 - 5 cm long, hairy. Petiole 1 - 3 cm, lamina (2-) 3 - 5 x (1,5-) 2 - 3 cm; ovate-elliptical, base broadly cuneate or shortly attenuate, apex acute or obtuse, margin crenate-serrate. Inflorescences from the upper 1 - 2 leaf pairs; peduncle roughly equalling the subtending leaf. Floral and fruit characters as in ssp. *elongata*.

Illustration: Fig. 2 b-d [herbarium specimens].

Distribution: Sumatra (prov. West Sumatra including Siberut and Sipura Island, Riau, Jambi), ? Borneo.

Notes: When describing *Didissandra minor* (from Sumatra, Pulau Siberut) RIDLEY himself noted that "this may be only a form of *D. elongata*". Its distinctive characters are the dwarf habit ('herba 8 - 15 cm alta') and the much smaller leaves ('foliis ovatis vel ellipticis obtusis, 4 cm longis, 2,5 cm latis'). In leaf size and form ssp. *minor* most resembles ssp. *montana* from Java (see notes under that subspecies).

The plant has thin creeping stems, which are \pm ascending in the distal part. The inflorescences are born in the axils of the upper leaf pairs and usually overtop the shoot. The lamina of the leaves is (2-)3 - 5 cm long, the form is ovate, with the base cuneate or shortly attenuate and the apex acute or obtuse. Plants with blunt leaves (e.g., BURLEY & al. 1417, Fig. 2 c) may look somewhat distinct, but variation from acute to obtuse leaves is sometimes found on a single plant.

In its typical form ssp. *minor* looks very distinct from ssp. *elongata* and might well be regarded as a separate species. There is, however, a number of collections in which the plants are intermediate in habit and leaf dimensions and assignment to "*elongata*" or "*minor*" is rather arbitrary. Even on the same plant the leaves (lamina) may vary from 5 to 8 cm length, falling roughly into two classes: the small leaves are found mainly on the decumbent stem part, the large ones on the distal ascending-suberect parts (e.g., BÜNNEMEIJER 4333, L, Fig. 2b; KORTHALS s.n., L). Therefore, ssp. *minor* - if taxonomically distinct at all - cannot be regarded as a separate species. Field studies and eventually growth experiments are needed to confirm the status.

The distribution seems to be confined to the middle part of Sumatra (roughly the latitude of Padang), including Siberut and Sipura island.

Specimens: S.loc., Sumatra Expedition 1877 - 78 (L). - KORTHALS s.loc., s.dat., s.n. (L: 947 153 150).

West Sumatra: Gunung Malintang, \pm 1200 m; 31.VII.1918, BÜNNEMEIJER 4157 (BO, L). - Gunung Sago; 7.VIII.1918, BÜNNEMEIJER 4333 (BO,

L). - [Pulau] Siberut, BODEN-KLOSS 10591 (K; type of *Didissandra minor*). - Island of Sipura; 20.X.1924, BODEN-KLOSS 14734 (K, L).

Riau: Pangkalan kasai, few m alt.; 3.IV.1939, BUWALDA 6314 (BO, L). - Tigapulu Mts., 5 km W of Talanglakat, on Rengat-Jambi-road; Bukit Karampal area; 102°32' E, 0°46' S, alt. c. 100 m; 13.XI.1988, BURLEY, TUKIRIN & al. 1417 (E, L, [A, BO]). - Ibid., 4.XI.1988, BURLEY, TUKIRIN & al. 1147 (A, BO, E, L).

Jambi: Bangko, \pm 160 m; 10.VII.1928, POSTHUMUS 596 (L).

Borneo (?): 'Borneo', s.loc., s.coll. 176 (L) [perhaps a mislabelled KORTHALS-collection from Sumatra].

5d. *Didissandra elongata* ssp. *montana* (Blume) A. Weber & B. L. Burt, stat. nov.

\equiv *Ellobum montanum* Blume, Bijdr. Fl. Ned. Ind. 14: 747 (1826).

\equiv *Vandellia* ? *ellobum* Benth. in A. DC., Prodr. 10: 417 (1846); Miq., Fl. Ned. Ind. 2: 694 (1856).

\equiv *Lobelia ellobum* (Benth.) Koorders, Exkurs. Fl. Java 3: 179 (1912).

\equiv *Didissandra montana* (Blume) Bakh.f., Fl. Males. Bull. 1/3: 73 (1948); Backer & Bakh., Fl. Java 2: 621 (1965).

= *Didymocarpus reptans* sensu CLARKE 1883, p.p., in A. & C. DC., Monogr. phan. 5/1: 95, p.p.; Koorders, Exk.fl. Java 3: 189 (1912); Beunmeé, Trop. Natuur 8: 62, Fig. 9 (1919) - non Jack.

Type (lectotype of *Didissandra montana*, STEENIS & BAKHUIZEN 1948): Java, West part, Bantam Residency; s.dat., KUHLE & VAN HASSELT s.n. (L, iso C, K [part of type from L], L).

Etymology: *montanus* = growing on mountains.

Description (floral characters adopted from BACKER & BAKHUIZEN 1965): Stem creeping, 20 - 40 cm long, rooting at and between nodes, internodes 4 - 8 cm long, densely hairy. Petiole 1 - 3 cm, hairy; lamina 3 - 4 x 1,5 - 2,5 cm, ovate, base rounded or broadly cuneate, apex broadly acute or obtuse, margin crenate-serrate. Inflorescences axillary; peduncle thin, much shorter than subtending leaf. Pedicel to 1 cm long, thin. Sepals 5, narrow triangular. Corolla white, outside eventually faintly tinged with violet, tubular-infundibuliform, tube 7 mm, limb strongly bilabiate, upper lip c. 2 mm, retuse, lower lip much longer (about the same length as tube), with 2 sulfurous brown-hairy stripes at the palate. Stamens 4, didynamous. Disc cup-shaped. Capsule (2,5 -) 3,5 cm long.

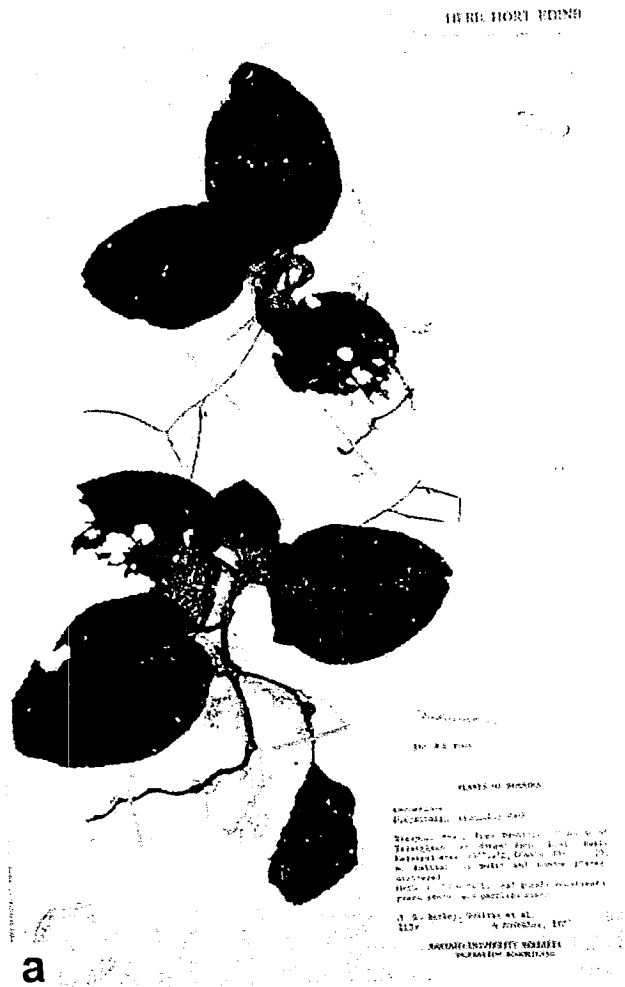


Fig. 3. a *Didissandra elongata* ssp. *burleyi* (BURLEY, TUKIRIN & al. 1139, E); b *D. elongata* ssp. *montana* (VAN STEENIS 11222, L).

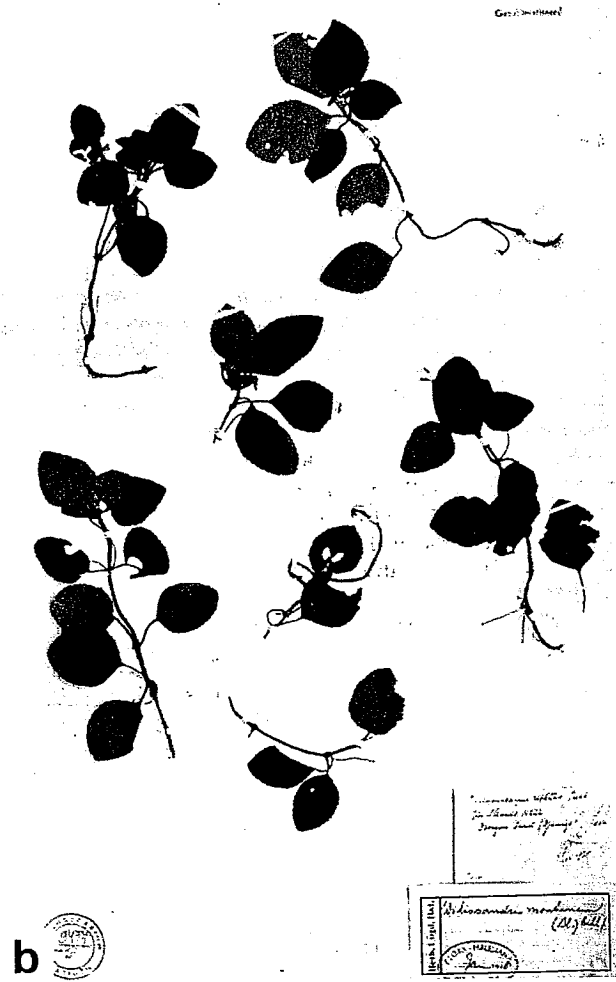


Fig. 3b

Illustrations: Fig. 3b; BEUMÉE (1919: Fig. 9, as *Didymocarpus reptans*).

Distribution: W. Java

Ecology: Ground herb in montane, evergreen rain forest.

Notes: Ssp. *montana*, the representative of *D. elongata* in Java, was originally described by BLUME (1826) as *Ellobium montanum* and placed in Scrophulariaceae. It matches ssp. *minor* well in leaf form and dimensions, but looks different in that the stem is prostrate throughout (eventually the growing part with one or two young leaf pairs upcurved), stouter and thickly hairy. Roots are born at and between the nodes, lacking only in the distal (growing) part. The leaves have roughly the same size as in ssp. *minor*, but tend to be more broadly elliptical, the base is often rounded, the apex is broadly acute to blunt. The leaves are all \pm of same size on the shoots. In brief, ssp. *montana* seems to be the small-leaved and totally creeping counterpart of typical '*elongata*'.

The differences are certainly slight and it may be that ssp. *montana* must be amalgamated with '*minor*' when more collections and information become available. But, at the present state of knowledge, it appears advisable not to drop the available names. The distinction as subspecies at least may help to draw attention to *D. elongata* as apparently representing a cline from ascending-suberect to totally creeping plants, leaf size and form being to some extent correlated with the growth habit.

Specimens: Java: Type (see above). - NE Goea Gadjah, BACKER 23151 (BO). - [BLUME?, KUHL & VAN HASSELT?], s. dat., s. coll., s. n. (L: 908 232). - ZOLLINGER 3062 (B, BM, G-DC, G-BOISS, G-DELESS - fide CLARKE 1883, P). - Doengoes Iwoel [Dungus Iwul] (Djasinga [estate in Bantam]), 175 m; 18. XII. 1938, VAN STEENIS 11222 (BO, L).

6. *Didissandra ternata* (Miq.) A. Weber & B. L. Burt, comb. nov.

\equiv *Didymocarpus ternatus* Miq., Fl. Ned. Ind., Suppl: 564 (1861); C. B. Clarke, in A. & C. DC., Monogr. phan. 5/1: 108 (1883).

\equiv *Roettlera ternata* (Miq.) O. Kuntze, Revis. gen. pl. 2: 477 (1891).

Type: N. Sumatra, in den Gebirgswäldern bei Lumut, JUNGHUHN (U).

Etymology: ternatus = ternate, in threes (the leaves).

Description: Stem to 30 cm, rooting from lower nodes, pilose with appressed or ascending hairs, middle internodes (with lowest persisting leaves) c. 5 cm long. Leaves in whorls of three, unequal; petiole up to 4 cm, pilose; lamina of largest leaf up to 8,5 x 4 cm, the other two some-

what smaller, glabrous above, thinly appressed pilose below (especially on the nerves), margins very lightly crenulate, main nerves c. 6 on each side, ascending. Inflorescences axillary; peduncles 3 from the same leaf axil, 3,5 cm to first branching, c. 6-flowered; pedicels of first flowers 5 mm, with glandular hairs 0,5 mm long, interspersed with much shorter eglandular ones. Sepals free to base, c. 3 mm long, linear, hairy with glandular and eglandular hairs. Fruit (immature) 3,6 mm long, shortly and thickly pubescent.

Distribution: N. Sumatra, only known from the type locality.

Notes: *D. ternata* is only known from the type specimen, and that is a single stem with young fruits: the basis for the above description is thus very inadequate. The species is closely allied to *D. elongata* and MIQUEL placed it alongside this species. It differs in having leaves in whorls of three, the upper surface of the leaf-blade glabrous and the margins only slightly crenulate, and in having three peduncles arising from a single leaf-axil. *D. elongata* has leaves in pairs, the leaf-blade hairy above and serrulate on the margins, and the peduncles are usually solitary in the leaf-axils, occasionally paired. None of these characters taken singly would justify specific separation, but together they certainly warrant retention of MIQUEL's name pending rediscovery and the opportunity to examine better material. Furthermore, *D. ternata* comes from N. Sumatra near Lumut, c. 1°33'N 98°56'E, whereas *D. elongata* is known only from the neighbourhood of Padang, 0°59'S 100°18'E, and further south.

Specimens: Type (see above).

7. *Didissandra brachycarpa* A. Weber & B. L. Burt, sp. nov.

Type: Atjeh, Gunung Leuser Nature Res.; Sikundur F. R., c. 75 km WNW of Medan, Post 4, Besitang River, 3°55' N, 98°05' E, 50 - 100 m; shaded place; plants rather light green; corolla (light) lilac, fruit very pale dirty greenish-white; 3. VIII. 1979, DE WILDE & DE WILDE-DUYFJES 19319 (holo L, iso BO, K).

Diagnosis: *Didissandrae elongatae* valde affinis, sed indumento villosa et fructibus tenuibus c. 15 mm longis differt.

Etymology: brachycarpus = short-fruited.

Description: Creeping, unbranched herb. Stem eventually ascending in the distal part, covered with long brown hairs. Leaves opposite, distant; petiole 1 - 3 cm long, hairy from short, \pm appressed and long, patent hairs; lamina broad-ovate or broad-elliptical, 4 - 6 x 2,5 - 3,5 cm, base rounded or broadly cuneate, apex broadly acute or obtuse, margin

finely crenate; both sides with long (in sicco) brownish hairs. Inflorescence an axillary, unilateral pair-flowered cyme, with 3 - 5 flower pairs 1 - 1,5 cm apart. Peduncle c. 5 cm long, with short eglandular hairs and sparse, long-staked glandular hairs; bracts small, linear, 1 - 2 mm long. Pedicels 0,5 - 0,8 cm long, indumentum as on the peduncle. Sepals free to base, very narrowly triangular, c. 2 mm long, hairy, persistent. Corolla tubular-infundibuliform, c. 1 cm long, light lilac. Stamens 4. Disc cup-shaped. Ovary hairy. Fruit c. 1,5 cm long, very thin, straight, with faint longitudinal ribs, in vivo greenish-white, in sicco pale brown, sparsely hairy with short, eglandular hairs.

Illustration: Fig. 4a [type specimen].

Distribution: Sumatra (Aceh: Gunung Leuser area).

Ecology: Primary rain forest, forest floor; shaded places, along streams.

Notes: *D. brachycarpa* is closely allied to *D. elongata* (in habit and in the indumentum coming close to ssp. *burleyi*). The stem is stout and distinctly woody. The essential distinctive character is the short, very thin fruit. The corolla colour is reported as '(light) lilac', the fruit is said to be 'very pale dirty greenish white' and is whitish to pale brown in the herbarium. As in *D. elongata* the axillary inflorescences bear several (around 3) pairs of flowers (fruits).

Specimens: Sumatra, Aceh: Type (see above). - Gunung Leuser Nature Res.; Sikundur F. R., c. 75 km WNW of Medan, Post 4, Besitang River, 3°55' N, 98°05' E, 50 - 100 m; 6. VIII. 1979, DE WILDE & DE WILDE-DUYFJES 19467 (L).

8. *Didissandra wildeana* A. Weber & B. L. Burt, sp. nov.

Type: N. Sumatra, Atjeh, Gunung Leuser Nat. Res.; Southern part of the reserves, Alas River valley, near the mouth of the Benkong River; c. 50 km S of Kutacane, c. 3° N 97°50' E, 50 - 125 m; rich soil over basalt; primary lowland rain forest; shaded sloping ground; stem pale brownish; corolla white, slightly pale lilac tinged; 17. VII. 1979, DE WILDE & DE WILDE-DUYFJES 18797 (holo L, iso BO, K).

Diagnosis: *Didissandrae elongatae* et *D. brachycarpae* affinis, sed foliis ellipticis-lanceolatis, inflorescentiis unifloris (raro bifloris) et fructibus 10 mm longis et glabris differt.

Etymology: named after W. J. J. O. DE WILDE and B. DE WILDE-DUYFJES, botanists at L, the collectors of the plant.

Description: Habit as in *D. brachycarpa*, but ascending stem portion more prominent and leaf lamina lanceolate-elliptical, acute at each end; 6 - 8 x 2,5 - 3,5 cm, petiole 2 - 4 cm. Indumentum mainly of long, brown hairs, short hairs sparse. Inflorescences axillary, mostly one-flowered, more rarely with a flower pair, peduncle + pedicel roughly as long as petiole, with long eglandular hairs, glandular hairs lacking; bracts small linear. Sepals 7 mm long, narrow-triangular-linear, hairy. Corolla 1 - 1,5 cm long, 'white, slightly pale lilac tinged'. Stamens 4. Disc cup-shaped. Ovary glabrous. Fruit c. 1 cm long, in vivo 'dirty green purplish', thicker than in *D. brachycarpa*.

Illustration: Fig. 4b [herbarium specimen].

Distribution: Sumatra (Aceh, Gunung Leuser reserve).

Ecology: Primary lowland rain forest; shaded sloping ground; damp stony slopes.

Notes: *D. wildeana* resembles *D. brachycarpa* somewhat in habit, but has narrower leaves and is clearly distinguished by the solitary flowers (or more rarely a single flower pair) topping the axillary inflorescences. The peduncle is very short (shorter or as long as the petiole of the subtending leaves) as compared to *D. brachycarpa* (much longer than the petiole). The fruit is very short (c. 10 mm long), slightly fusiform and completely glabrous. Like *D. brachycarpa*, *D. wildeana* may be an off-spring of *D. elongata* that has evolved in local isolation in the northern part of Sumatra.

Specimens: Sumatra, Aceh: Type (see above). - Gunung Leuser Nat. Res.; Southern part of the reserves, Alas River valley, near the mouth of the Benkong River; c. 50 km S of Kutacane, c. 3° N 97°50' E, 50 - 125 m; 18. VII. 1979, DE WILDE & DE WILDE-DUYFJES 18866 (BO, L, K).

Excluded species

Didissandra humilis Kränzl., Mitt. Inst. Allg. Bot. Hamburg 7: 85 (1927).

Type: West-Borneo, am Sungei Raun, um 650m, 10. II. 1925, WINKLER 1543 (holo HBG, iso BO?) = *Staurogyne* sp. (Acanthaceae).

Didissandra johorica Ridl.

On grounds of superficial similarity in habit with *Didissandra frutescens* (tall stature, similar leaf form, inflorescences from the lower leaf axils) - but without knowing the flowers - RIDLEY referred the species to *Didissandra* sect. *Cyrtandroides*. Personal collections showed, however, that the flowers have only two stamens and that the fruits are plagiocar-

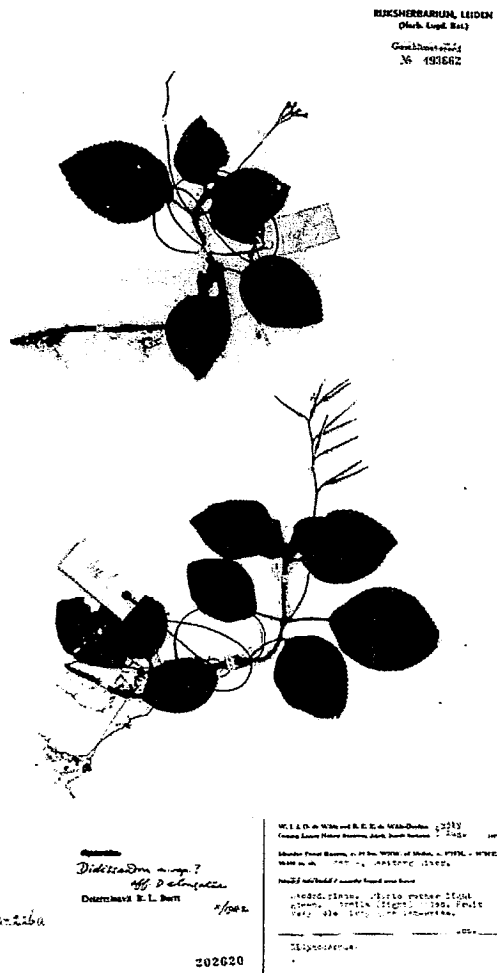


Fig. 4. a *Didissandra brachycarpa* (DE WILDE & DE WILDE-DUYFJES 19319, L.; holotype); b *D. wildeana* (DE WILDE & DE WILDE-DUYFJES 18866, L).



Fig. 4b

pic, opening only along the upper side. So there is no doubt, that the species must be referred to the re-established and emended genus *Henckelia* (see WEBER & BURTT 1998b for the formal transfer).

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