

SUPPLEMENTARY NOTES ON 'DIDYMOCARPUS CORCHORIFOLIUS AND
ITS ALLIES (GESNERIACEAE)'

A. WEBER¹ & B. L. BURTT²

SUMMARY

Based on recent collections and field observations, supplements are communicated regarding the morphology, chromosome number and occurrence of *Didymocarpus antirrhinoides* A. Weber and *D. corchorifolius* DC. The plant on Pulau Tioman, formerly thought to represent eventually a new species, is definitely assigned to *D. antirrhinoides*.

In a recent paper with the above title (Weber & Burtt, 1983) sect. *Elati* Ridley was redefined and reinstated for the accommodation of a few morphologically outstanding and obviously closely allied Malayan species of *Didymocarpus*. Due to insufficient material, one major problem had to be left open: The identity of a plant occurring on Tioman island and hitherto assigned to *D. corchorifolius*. It appeared to be different both from this and the newly described *D. antirrhinoides* (with which it shares the same flower structure). As Pulau Tioman is known to support a fair number of endemics (Henderson, 1930; Stone, 1977; among them *Didymocarpus tiumanicus*³ it appeared feasible that the plant could represent a distinct, new species. While waiting for better material, the plant was temporarily listed as *Didymocarpus* sp. in the paper. New collections and field observations, obtained by the first author in July and August 1984, are now available and enable this problem to be solved. In addition, new information is provided relating to some other items.

'DIDYMOCARPUS SP.' ON PULAU TIOMAN

The two collections hitherto available (citations in Weber & Burtt, l.c.) both originate from Gunung Rokem. This rain forest covered hill (c. 830 m) was explored and a population of the plant was located somewhat below the top. The population consisted of numerous large clumps of ± erect shoots growing on a large granite outcrop.

¹) Institute of Botany, University of Vienna, Rennweg 14, A-1030, Vienna, Austria.

²) Royal Botanic Garden, Edinburgh.

³) Originally described as *Paraboea tiumanica* Burk. ex Ridley and listed under that name in the literature cited, but transferred by Burtt (1971) to *Didymocarpus*.

Though no mature flowers were present (but buds), it became definitely clear that the plant was identical with *Didymocarpus antirrhinoides*. The formerly supposed differences from that species (small stature, short internodes and smaller leaves, marked development of brachyblasts with crowded leaves, mostly 1-flowered inflorescences) could be clearly related to edaphic conditions: The clumps growing on flat or gently sloping moss and humus covered rock faces¹ had shoots more than 1 m high and (as could be traced from dead shoots with fruits) several-flowered inflorescences, whereas those on steeper and bare rocks sometimes reached a height of 30 cm only, had a much more compact habit and produced only few- to one-flowered inflorescences. Such specimens indeed give the impression of a distinct species, in particular when compared with plants collected at Fraser's Hill (near type locality) with shoots growing to a length of up to 3 metres.

Thus, within sect. *Elati* the *Didymocarpus corchorifolius*-group definitely consists of two species only and in the key (Weber & Burt, l.c.: 300) the dichotomy 3a/b must be amalgamated.

Collection citation. *D. antirrhinoides* A. Weber, Malaysia, Pahang, Pulau Tioman, Gunung Rokem, c. 750 m, on large rock boulders in montane forest, Weber 840726-2/1 (WU)².

ADDITIONAL NOTES ON DIDYMOCARPUS ANTIRRHINOIDES

Apart from Pulau Tioman, *Didymocarpus antirrhinoides* was found also on Gunung Ledang and again on Fraser's Hill (near type locality). Gunung Ledang is remarkable as the species was not known from here and its presence fills a distributional gap between the occurrence in Negri Sembilan (Ulu Pedas, Ulu Bendol) and South Johore (Sungai Pulai dua).

Collection citation. *D. antirrhinoides* A. Weber, Malaysia, Johore, Gunung Ledang (Mt Ophir), lower slopes, below dam of water reservoir, c. 600 m, on sloping granite rock face, Weber 840717-1/1 (WU)².

Didymocarpus antirrhinoides usually grows in montane, humid situations on acid, moist, bare or humus covered rock boulders, either on the top or on the flank of the rocks. There is a short, fleshy rhizome present which clings to the substrate through a dense mass of thin roots and which produces ± woody, aerial shoots. When growing on a horizontal or slightly sloping surface, the shoots grow ± erect and the leaves stand in nearly isophyllous pairs. When growing on the rock flank, the shoots spread off horizontally or grow inclined downwards (fig. 1a). The anisophylly then becomes more pronounced and the leaves tend to form a flat mosaic. Vigorous shoots may reach a length up to 3 m and branch richly in the lower part. The peculiar personate flowers always occupy a drooping position (fig. 1a, b). Unfortunately, pollinators (probably bees) could not be observed.

¹) The accompanying flora included *Medinilla speciosa*, *Pandanus ?lais*, *Bulbophyllum sp.* and *Aeschynanthus sp.* (not in flower).

²) Duplicates will be distributed to other herbaria including K, L, KLU and UPM.



Fig. 1. *Didymocarpus antirrhinoides* A. Weber (Fraser's Hill). a. Flowering shoot of a plant growing on rock flank; b. flower, $\times 1$. — *D. corchorifolius* DC. (Penang Hill). c. Plant growing on rock face; d, e. flower, seen from side and below, $\times 1$; e. mitosis (metaphase) in anther tissue (bar: $10\ \mu\text{m}$).

There is apparently a periodicity in the flowering, as all specimens of the populations on G. Ledang and G. Rokem were in the same stage of development (just starting to flower). The shoots die after fruiting and new shoots are developed from the rhizome. The presence of a rhizome which produces monocarpic shoots underlines the connection of sect. *Elati* to the more temperate sect. *Didymocarpus*, which comprises mainly perennial herbs with annual stems.

DIDYMOCARPUS CORCHORIFOLIUS ON PENANG HILL

As Penang Hill is badly affected by settlements and tourism in the upper part, its montane plants are heavily threatened and many may have disappeared already. *Didymocarpus corchorifolius* is, apart from a single, old collection from Pattani (S. Thailand) only known from that mountain and its disappearance from here would perhaps mean the extinction of the species. Luckily, one population (hopefully not the last one) could be spotted, and the following collection may be taken as a document that the species, last collected in 1941, is still existent:

Collection citation. *D. corchorifolius* DC., Malaysia, Penang Hill (Bukit Bendera), E of Viaduct Station, on moist rock wall on side of old tarmac road, Weber 840803-1/4 (WU).

The population consisted of about a dozen specimens of various developmental stages (including seedlings). Two plants had already started to flower (the one within reach, with one open flower, is shown in fig. 1c). As was suspected, the corolla is personate and much like that of *D. antirrhinoides* (fig. 1d; a floral difference is the calyx having completely free sepals). The corolla colour was white, suffused pinkish and with a yellow-green palate. The photograph (fig. 1c) demonstrates well the characteristic growth pattern: The shoots, which emerge from a short rhizome clinging to the \pm vertical rock wall, grow sloping downwards. The distinctly anisophyllous leaves of the main shoot and those of the conspicuous brachyblasts are held more or less in one plane and form a distinct leaf mosaic. As described already, in *D. corchorifolius* the anisophylly is much more marked than in *D. antirrhinoides* and the leaves are distinctly narrower.

CHROMOSOME NUMBERS

The following chromosome counts were made by Mr Kiehn, employing the acetocarmine staining technique. The chromosome number of *Didymocarpus corchorifolius* ($2n = 22$) is published here for the first time, that of *D. antirrhinoides* was reported already by Ratter & Milne (1970; as *D. corchorifolius*, material from Bujong Melaka) with $n = 22$. The present, deviating count ($2n = 22$, material from Gunung Ledang) exhibits that (at least) two chromosomal races (diploids, tetraploids; $x = 11$ being the base number of sect. *Elati*) exist within the species. In our former identification work no indication of an infraspecific differentiation was found which eventually could be related to different ploidy levels. Future and more extensive collec-

tions of living material, paralleled by chromosome counts, must reveal whether the two cytotypes can be distinguished morphologically and/or whether they show a significant distribution pattern.

D. corchorifolia $2n = 22$ (fig. 1e) Weber 840803-1/4, Penang
(full citation see above)

D. antirrhinoides $2n = 22$ Weber 840717-1/1, G. Ledang
(full citation see above)

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