

Early in November 1975 my wife and I were the guests of Mr and Mrs I. F. Garland, who own a large sugar estate at Mtunzini, some 160 km north-east of Durban. Being a keen amateur botanist, Mr Garland has next to his estate a large private piece of land representing a marvellous transect of coastal vegetation, from the ancient inner dunes to the beach. He has also established two natural forest arboreta of indigenous woody Natal plants; we had the privilege of contributing to these arboreta by planting a young tree of *Diospyros* to mark our visit. The high outer dunes and embryonal dunes in front of them are almost exclusively covered by *Scaevola plumieri* (L.) Vahl, sometimes mentioned in South African literature as *S. thunbergii* Eckl. & Zeyh.\* Though more erect than what I saw of this ubiquitous in West Ceylon, it is my contention that Krause was correct in referring the plant to *S. plumieri*. There is a small transition to dense coastal forest in which the beautiful *Passerina rigida* Wikstr. and *Tephrosia purpurea* (L.) Pers. var. *canescens* (E. Mey.) Brummitt are conspicuous. The more one penetrates the interior of this forest, the more convinced one is that this is old primary forest. It is very mixed in composition with *Drypetes*, *Ilex*, *Diospyros*, *Combretum*, etc. A sluggish streamlet winds its way to the sea, along which is *Barringtonia racemosa*. The herbaceous undergrowth consists of a few species here and there, e.g. *Dichondra*, *Centella*, *Aneilema*, *Plectranthus*, and an orchid which at the time of our visit was in fruit. In the undergrowth there is also a rather monotonous stand, 1–2 m high, of an Acanthaceae plant, probably *Isoglossa*, which was sterile at the time of our visit. It reminded us strongly of similar undergrowth stands of the Acanthaceae genus *Strobilanthes* in the Malesian tropics (see p. 000).

If my feeling of a parallel with tropical conditions was correct, one could extend the parallel further and look for saprophytic plants which might easily be expected on the humus, litter-covered sandy and shaded soil. Saprophytes are fairly frequent in the everwet forests of the Malesian tropics. They belong to certain families which consist only of saprophytes for example, Triuridaceae, Corsiaceae and Burmanniaceae and the genera *Epirixanthes* of Polygalaceae, *Petosavia* of Liliaceae, *Cheilothea* of Ericaceae, *Cotylanthera* of the Gentianaceae, *Stereosandra*, *Aphyllorchis*, *Didymoplexis* and *Gastrodia* of Orchidaceae, and further odd

saprophytic species of otherwise not saprophytic orchid genera. Saprophytes are largely tropical, but they are also found in temperate forests.

Except for most of the Orchidaceae, all these saprophytic plants are of small size and of tiny structure; their perennial underground parts consist of an often tuberous or coralloid rhizome living in symbiosis with ecto-mycorrhiza feeding on the forest humus. The part above ground is a mostly unbranched tiny stem with scale-like leaves. The whole plant is devoid of any chlorophyll and brownish, whitish, pale or reddish; mostly they hardly extend above the litter,



FIG. 15.—*Didymoplexis* sp. in fruit. A saprophytic, terrestrial orchid growing in the litter of primary, mixed, coastal dune forest at Mtunzini on the property of Mr I. F. Garland, 3–11–1975. Natural size. *Van Steenis* 24035 (PRE). The photograph by P. Weisser has been retouched.

\* Editor's note: In Ross's Flora of Natal (1972) the plant is called *S. thunbergii* and in the National Herbarium, Pretoria, the South African specimens have been determined as *S. thunbergii* by Harold St. John.

which is a deceptive camouflage. Having set fruit, the pedicels may enlarge and sometimes become thicker, even thicker than the stem itself, by which the fruit is raised above the litter. It is a "sport" to spot them: the best way is just to stand and watch. Having a special interest in them, I had formerly (1934) made a key to the dozens of Malesian species and collected many myself. From this experience the Mtunzini forest offered a comparable, ideal habitat and indeed I was lucky in spotting a single specimen\* of a saprophytic orchid of which Dr Pablo Weisser, our diligent botanical courier made an excellent photograph (Fig. 15). The whole stem—the rhizome was left untouched—measures only 9 cm, the part above ground was 6 cm; the stem carried one fruit on a thickened lengthened pedicel. I am convinced that this orchid belongs to the genus *Didymoplexis*. This genus is widely distributed in south-east Asia to the Pacific, throughout the Asian and Malesian tropics to Japan, the Ryu Kyu Islands, Formosa, Micronesia (Carolines), Polynesia (Loyalty Islands, Fiji, Samoa), and Melanesia (New Caledonia). From Madagascar one species was described, *D. madagascariensis* (H. Perrier) Summerh. (Kew Bull. 1953: 131, earlier referred to the genus *Gastrodia*) and one was reported from Tanzania, East Africa, viz. *D. africana* Summerh. [Kew Bull. 1951: 465 (1952)].

It is certain that this saprophyte is a new record for the South African flora, but there is some doubt as to

\* Subsequently in September 1977, Mr E. G. H. Oliver discovered 25–30 fruiting specimens of the orchid in the same forest.

its proper generic status, although phytogeographically it is most likely to be a *Didymoplexis*. Summerhayes pointed out that in tropical West Africa there is another saprophytic genus, *Auxopus*, with similar habit, which is closely allied, and differs from *Didymoplexis* in having a scarcely 2-lipped perianth and an entire, callose lip. The presence of this character can only be established when the Mtunzini plant is found in flower.

This preliminary note is published on order to focus the attention of South African botanists on these tiny saprophytes in everwet, primary forest—plants which are so easily overlooked in cursory collecting. Besides, in our experience these saprophytes frequently grow together, and once one species is spotted, other species of different families may be expected, as they are all closely bound to a distinct biotope. The African flora is poorer in saprophytes than the Indo-Malesian one, but I found recorded for instance from West Africa, besides *Auxopus*, the genera *Schwartzkopffia* and *Epipogium*, four genera of Burmanniaceae and *Voyria* of Gentianaceae, which might encourage botanists to look for them in Natal rain-forest.

#### REFERENCE

- VAN STEENIS, C. G. G. J., 1934. Determinatie-tabel voor de Nederlandsch-Indische bladgroenlooze gewassen. *De Tropische Natuur* 23: 45—57, fig. 24.

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