

Trichomanes proliferum Bl.

A new record for the fern flora of Singapore

R. L. L. VIANE

Botanical Institute, Rijksuniversiteit, Gent, Belgium

Summary

Trichomanes proliferum Bl. is reported for Singapore for the first time. Some morphological characters are discussed.

Introduction

With the kind assistance of Dr. Chang of the Botanic Gardens I was able to collect some ferns in the Nee Soon swamp forest in July 1982. New records could hardly be expected as the fern flora of Singapore is rather well known. However, one of the plants collected was identified as *Trichomanes proliferum* Bl., which was not recorded for Singapore by either Holttum (1966) or by Johnson (1977), nor is there a specimen from Singapore in the herbarium of the Botanic Gardens (SING) (Dr. Chang, pers. comm.). It seems therefore that the following collection, deposited in the Herbarium of the State University of Ghent (GENT), is the first from the Island.

R. Viane & Noë 2369; Singapore, Nee Soon swamp-forest: on tree trunk along rivulet, just above the water level; rare; together with *Trichomanes motleyi* v.d. Bosch; 29 July 1982. Photo (plate 1) in SING.

T. proliferum is a filmy fern (Hymenophyllaceae) of the *Gonocormus* group that is characterized by its proliferous frond axes. Copeland (1938: 56) stated about *Gonocormus*: "... a well defined genus of exceedingly ill-defined species ..." and distinguished six "species" of which *T. proliferum* was said to be the most characteristic. Holttum (1966: 95-97) believed *Gonocormus* to be related to the *Vandenboschia* group; he accepted two "not clearly distinct" species: *T. minutum* Bl. and *T. proliferum*, both recorded from Malaya but not from Singapore.

Distribution

T. proliferum was first described from Java by Blume (1828); according to Copeland (1933: 150) "it is probably common throughout the Malay region" (incl. Philippines). Holttum (1966) gave "Malaysia" (= area of Flora Malesiana) as the overall range and stated that the plant is "found in both lowlands and mountains". The single population seen by the present author was growing among mosses on a very sheltered wet tree trunk in the Nee Soon swamp-forest. More populations of this small and easily overlooked fern probably exist in the area. Nee Soon is one of the few remaining lowland swamp-forests that once covered large areas of Singapore and Johore (Corner, 1978).

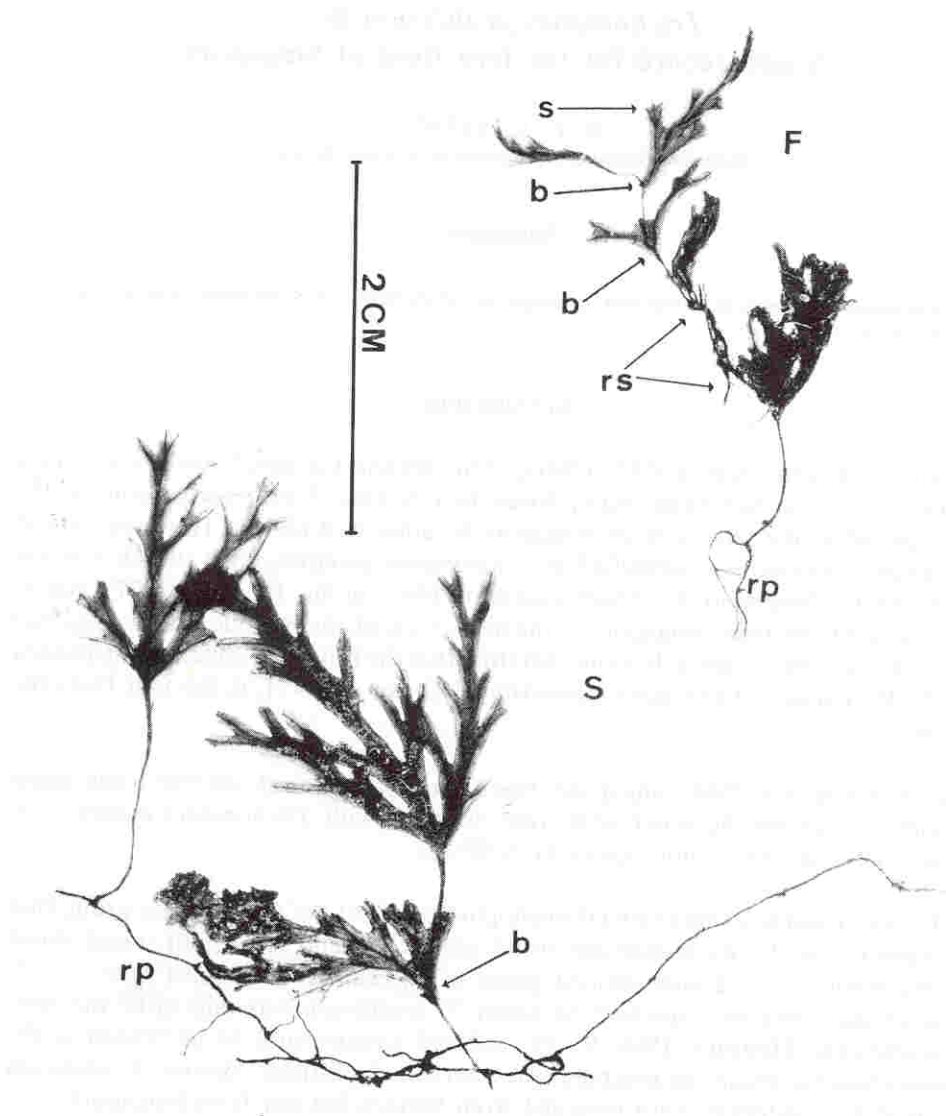


Plate 1. *Trichomanes proliferum* Bl. (R. Viane & Noë 2369). F, fertile plant; S, sterile plant. b, proliferous bud with its frond; rp, primary rhizome; rs, secondary rhizome from a bud; s, sorus.

Morphological Notes

A brief description and figure are given by Holttum (1966). Bierhorst (1973, 1974) studied the branching pattern in *Gonocormus* in relation to: (a) the concept of non-appendicular fronds, and (b) the rhizome morphology of other Hymenophyllaceous "genera". Yoroï and Iwatsuki (1977) discussed the variability of the frond form and the proliferation of the *Trichomanes minutum*-group along with cytological and anatomical data.

The plants from Nee Soon (plate 1) have fronds up to 4 cm long (including the stipe), well spaced on a delicate, wiry "rhizome". This "rhizome" has no roots but is covered by many multicellular uniseriate brown hairs. Few fronds were fertile (plate 1F). The stipes of (almost) all mature fronds have one to three dormant buds, visible as slight swellings of the stipe tissue covered with a tuft of brown hairs. Above these dormant stipe buds there often is a proliferating (= functional) bud (plate 1: *b*, arrows) c. 1 mm above the cuneately narrowed lamina base; it forms the "secondary" frond. This "secondary" frond is similar to the "primary" frond; it has dormant stipe buds too and the functional bud at its lamina base may produce another frond, and so on. An additional dormant bud is sometimes present on the vascular tissue of the lamina (c. 4 mm above its base). The functional buds occasionally produce "secondary rhizomes" in the abaxial axil of the secondary or higher order leaves (plate 1F, *rs*, arrow). The secondary "rhizomes" are morphologically similar to the primary and develop from the bud only after it has produced a frond. Another fern with buds forming small but conspicuous (elongate) rhizomes is the West African "*Ctenitis*" *jenseniae* (C. Chr.) Tard.

Nomenclature

If *T. proliferum* and *T. minutum* cannot be recognized as two separate species, as suggested by Copeland (1958) as well as by Yoroï and Iwatsuki (1977), then the name *T. minutum* Bl. *sensu lato* (Copeland, 1958) should be applied to the Singapore plants.

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