

A PRELIMINARY CHECKLIST OF MOSSES OF PULAU TIOMAN, PENINSULAR MALAYSIA

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ABSTRACT. - A checklist of mosses collected from Pulau Tioman and preserved at KLU and SINU herbaria is presented. A total of 49 genera and 89 species of mosses were enumerated. A brief discussion of the floristic composition of the island's moss flora is also attempted. *Acroporium strepsiphylum* var. *falcifolium* (Fleisch.) B. C. Tan & H. Mohamed is a new combination.

KEY WORDS. - Mosses, moss flora, Malesia, Peninsular Malaysia, Pulau Tioman, Gunong Kajang, forest, endemic.

INTRODUCTION

Pulau Tioman is a small, isolated island off the eastern coast of Malayan Peninsula. It offers a variety of vegetations and different habitats suitable for moss colonization and diversification. These include primary lowland dipterocarp forest, upper hill cloud forest, secondary succession forest, mangrove and coastal forests, in addition to man made habitats around villages and resorts/hotels. For general information on the natural history, vegetation types and vascular plant floras of the island, see Lee et al. (1977) and articles by Latiff et al. (1999) and Jaman & Latiff (1999).

Early botanical exploration to the island conducted by British botanists from the Singapore Botanical Gardens yielded only a few moss specimens (Henderson 1930). Some of these were reported by Dixon (1926) and subsequently quoted by Mohamed & Tan (1988). More recent collections of mosses from the island were cited in Mohamed & Abdullah (1988) and Mohamed & Robinson (1991). Until recently, there has been no published list of Pulau Tioman mosses.

A total of 49 genera and 89 species of mosses are reported here for Pulau Tioman. The specimens are preserved in the herbaria of the University of Malaya at Kuala Lumpur (KLU) and the National University of Singapore (SINU).

For a small area less than the size of Singapore, the island supports a rich moss flora worthy of conservation. For example, of the reported 135 genera of Peninsular Malaysian mosses (Mohamed & Tan, 1988), 49 genera (about one third of the total generic flora) are found on Pulau Tioman. Its high species diversity is also comparable to that observed in nature reserves of a similar size on Peninsular Malaysia. The two largest families of mosses on Pulau Tioman are the Calymperaceae and Fissidentaceae, each of which has about 8 and 10 species.

On Gunong Kajang at elevations above 600 m, the moss diversity starts to increase significantly and becomes more representative of the montane flora in western Malesia. Moss taxa typical of high elevations found on G. Kajang are *Dicranoloma blumii*, *Leucobryum javense*, *Papillidiopsis malayana* and *Symphysodontella neckeroides* var. *subneckeroides*. The majority, however, are common mosses of lowland rain forests in the region. They include *Arthrocormus schimperii*, *Callicostella papillata*, *Diphyscium involutum*, *Fissidens nobilis*, *Hypnodendron dendroides*, *Hypopterygium tenellum*, *Leucobryum aduncum* var. *scalare*, *Leucophanes glaucum*, *Pogonatum piliferum*, *Thuidium plumulosum*, *Rhynchostegium celebicum* and *Vesicularia* spp. The island also harbours a few interesting mosses that are epiphytic on branches of forest trees. They are *Acroporium strepsiphyllum*, *Chaetomitrium orthorrhynchium*, *Clastobryophilum bogoricum*, *Macromitrium zollingeri* and *Trichosteleum ruficaule*.

Our preliminary analysis shows that the floristic affinity and pattern of moss distribution on Pulau Tioman parallels that reported for the island's seed plant flora (see Lee et al., 1977; Latiff et al., this volume). Of special phytogeographical interest are the widely scattered, but locally infrequent, Asiatic taxa found on Pulau Tioman. They are *Distichophyllum schmidtii*, *Leucomium strumosum*, *Mniomalina semilimbata* and *Regmatodon declinatus*. The last mentioned taxon is known disjunctively from the Himalayas, Thailand, China, Borneo, Java, and one other locality on Peninsula Malaysia. Because of its insular isolation from the peninsula, Pulau Tioman also has one local endemic, *Trichostelium albifolium*, which has another population on the adjacent peninsula.

Lastly, we have on hand a few specimens of Pulau Tioman mosses that can not be determined with certainty. They will probably represent novelties of Malayan or Malesian mosses upon further study.

A CHECKLIST OF PULAU TIOMAN MOSSES

- Acanthorrhynchium papillatum* (Harv.) Fleisch.
Acroporium convolutum (Bosch & Lac.) Fleisch. var. *convolutum*
A. convolutum var. *elatum* (Dix.) B.C. Tan
A. lamprophyllum Mitt.
A. stramineum (Reinw. & Hornsch.) Fleisch.
A. strepsiphyllum (Mont.) B.C. Tan
A. strepsiphyllum var. *falcifolium* (Fleisch.) B.C. Tan & H. Mohamed, *comb. nov.* [Basionym: *Sematophyllum falcifolium* Fleisch., Hedwigia 44: 138. 1905] - Tan (1994) questioned the taxonomic recognition of *Acroporium falcifolium* (Fleisch.) Fleisch. However, specimens of this species with falcate leaves seen on Pulau Tioman are rather distinctive and consistent. Hence, we decided to give it a formal varietal recognition.

- Arthrocormus schimperi* (Dozy & Molk.) Dozy & Molk.
Bryum apiculatum Schwaegr.
B. coronatum Schwaegr.
Caduciella mariei (Besch.) Enroth
Callicostella papillata (Mont.) Mitt.
C. prabaktiana (C. Muell.) Bosch & Lac.
Calymperes afzelii Sw.
C. fasciculatum Dozy & Molk.
C. lonchophyllum Schwaegr.
C. palisottii Schwaegr.
C. taitensis (Sull.) Mitt.
Campylopus serratus Lac.
Chaetomitrium orthorrhynchium (Dozy & Molk.) Bosch & Lac.
Claopodium prionophyllum Broth.
Clastobryophilum bogoricum (Bosch & Lac.) Fleisch.
Dicranoloma blumii (Nees) Par.
D. brevisetum (Dozy & Molk.) Par. var. *samoanum* (Broth.) B.C. Tan & Kop. [syn. *D. braunii* (Dozy & Molk.) Par.]
Diphyscium involutum Mitt.
Disticlophyllum jungermannioides (C. Muell.) Bosch & Lac.
D. nigricaulis Bosch & Lac.
D. schmidtii Broth.
Ectropothecium ichnotocladum (C. Muell.) Jaeg.
E. zollingeri (C. Muell.) Jaeg.
Exostratum blumii (Hampe) Ellis
Fissidens ceylonensis Dozy & Molk.
F. crassinervis Lac.
F. crenulatus Mitt. var. *elmeri* (Broth.) Iwats. & Suzuki
F. javanicus Dozy & Molk.
F. nobilis Griff.
F. zippelianus Dozy & Molk.
F. zippelianus var. *robinsonii* (Broth.) Iwats. & Suzuki
F. zollingeri Mont.
Himantocladium cyclophyllum (C. Muell.) Fleisch.
H. plumula (Nees) Fleisch.
Homaliodendron exiguum (Bosch & Lac.) Fleisch.
H. flabellatum (Sm.) Fleisch.
H. microdendron (Mont.) Fleisch.
Hypnodendron dendroides (Brid.) Touw
Hypopterygium tenellum C. Muell.
Isocradiella surcularis (Dix.) B.C. Tan & H. Mohamed
Leucobryum aduncum Dozy & Molk. var. *scalare* (Fleisch.) A. Eddy
L. arfakianum Geh. [syn. *L. subsanctum* Broth.]
L. bowringii Mitt.
L. javense (Brid.) Mitt.
L. sanctum (Brid.) Hampe
Leucoloma amoene-virens Mitt.
L. molle (C. Muell.) Mitt.
Leucomium strumosum (Hornsch.) Mitt. [syn. *L. aneurodictyon* (C. Muell.) Jaeg.]
Leucophanes angustifolium Ren. & Card.
L. glaucum (Schwaegr.) Mitt.
L. octoblepharioides Brid.
Lopidium trichocladon (Bosch & Lac.) Fleisch.
Macromitrium zollingeri Bosch & Lac.
Meiothecium microcarpum (Hook.) Mitt.
Microdus miquelianus (Mont.) Besch.
Mitthyridium fasciculatum (Hook. & Grev.) Robins. var. *cardotii* (Fleisch.) A. Eddy
M. flavum (C. Muell.) Robins.
M. repens (Harv.) Robins.
Mniomalia semilimbata (Mitt.) C. Muell.

Octoblepharum albidum Dozy & Molk.
Papillidiopsis malayana (Dix.) B.C. Tan
Pelekium bifarium (Bosch & Lac.) Fleisch.
Philonotis mollis (Dozy & Molk.) Mitt.
Pyrrhobryum spiniforme (Hedw.) Mitt.
Pogonatum piliferum (Dozy & Molk.) Touw [syn. *Racelopus pilifer* Dozy & Molk.]
Racopilum spectabile Reinw. & Hornsch.
Radulina hamata (Dozy & Molk.) Buck & B. C. Tan
Regmatodon declinatus (Hook.) Brid. [syn. *R. serrulatus* (Dozy & Molk.) Bosch & Lac.]
Rhynchostegium celebicum (Lac.) Jaeg. [syn. *Eurhynchium celebicum* (Boch & Lac.) Bartr.]
Symphysodon neckeroides Dozy & Molk. var. *subneckeroides* (Broth.) B. C. Tan
Syrrophodon albovaginatus Schwaegr.
S. croceus Mitt.
S. muelleri (Dozy & Molk.) Lac.
Taxithelium instratum (Brid.) Broth.
T. nepalense (Schwaegr.) Broth.
T. sumatranum (Bosch & Lac.) Broth.
T. vernieri (Duby) Besch. [syn. *T. lindbergii* (Jaeg.) Ren. & Card.]
Thuidium cymbifolium (Dozy & Molk.) Dozy & Molk.
T. glaucinoides Broth.
T. plumulosum (Dozy & Molk.) Dozy & Molk.
Trichosteium albifolium Dix.
T. boschii (Dozy & Molk.) Jaeg.
T. ruficaule (Thwaites & Mitt.) B.C. Tan
Trismegistia rigida (Mitt.) Broth. [syn. *T. lancifolia* (Harv.) Broth.]
Vesicularia montagnei (Bel.) Broth.

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