

# A New Species of *Adiantum* from Trus Madi Range, Sabah

AZIZ BIDIN<sup>1</sup>, RAZALI JAMAN<sup>2</sup> and KAMARUDDIN MAT SALLEH<sup>3</sup>

<sup>1</sup> & <sup>2</sup>Botany Department, Faculty of Life Sciences  
Universiti Kebangsaan Malaysia, 43600 Bangi  
Selangor, Malaysia

<sup>3</sup>Biology Department, Faculty of Science and Natural Resources,  
Sabah Campus, Kota Kinabalu, Sabah, Malaysia

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## Abstract

*Adiantum lamrianum* Aziz Bidin and Razali Jaman is described as a new species. It is found in undisturbed forest of Trus Madi Range, Sabah.

## Introduction

The flora of Sabah has been of great interest among botanists since Hugh Low first reached the summit of Mount Kinabalu on 11 March 1851. Since then many more expeditions have been carried out mainly to collect plants along the trail to Kinabalu Peak. Among the notable accounts and collections were those of O. Stapf in 1894 (Cockburn, 1978); L. Gibbs and D.R. Maxwell in 1910, J. Clemens and R.E. Holttum in 1931 (Jenkins, 1978) and more recently J.H. Beaman in 1983–1984 (Price, 1987), who collected at various localities along the Crocker Range which extends from Northeastern Sarawak to Northern Sabah including Mt. Kinabalu. Meanwhile, the southern portion of Borneo (Kalimantan Indonesia) has been extensively surveyed by a group of Japanese workers in collaboration with their Indonesian counterparts at LIPI, Bogor. Their total collection amounted to more than 15,000 numbers of vascular plants and a vast number of bryophytes and lichens (Iwatsuki *et al.*, 1980; Iwatsuki & Kato, 1980a, & b, 1981 and 1983a & b). Recently in the course of preparing a general account of the ferns of the Trus Madi and Crocker Ranges, Sabah, the authors came across a number of specimens that could not be matched with other Bornean or Malesian materials. One of the species, belonging to the genus *Adiantum*, is described in the present paper. This particular species is from a medium elevation hill dipterocarp forest on the eastern slope of Trus Madi Range, where it was collected from an extensive population on the rocky bank of a small river.

## Description of the New Species

*Adiantum lamrianum* Aziz Bidin & Razali Jaman, *sp. nov.*

Fig. 1.

Rhizoma breve, erectum, basibus stipitum aggregatis, ad apicem squamatum; squamae triangulares vel lanceolatae, ad 1 mm longae, c. 0.1 mm latae, atrobrunneae; stipes usque ad 4 cm longus, ater vel atrobrunneus, sulcatus, nitidus, glaber praeter basem sparsim squamatam; filum xylematis parum sursum curvum ubique; lamina oblonga vel lineariovata, pinnata, pinnae ad c. septem pares et pinna terminalis, petiolatae, alternatae, in amplitudine similes sed infimae curtiores et flabellatae, dispositae arcte sed non imbricatae, costa carentes, ad marginem basiscopicam rectae vel parum deorsum curvae, ad marginem acroscopicam ad distalem incisae sed non profunde, tamen lobatae, in textura herbaceae vel tenuiter herbaceae, parce hirsutae, pilis uniseriatis atrobrunneis 0.3–1.0 mm longis, praeditae, venae dorsae, ad paginam





Fig. 1: *Adiantum lamrianum* from Trus Madi, Sabah (KMS 2005, UKMB)

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|-------------------------------|-------------------------------------|
| 1A. Complete adult frond.     | 1F. Scale of stipe base.            |
| 1B. Details of pinna shape.   | 1G. Scale of rhizome.               |
| 1C. Matured sporangium.       | 1H-1K. Stellar system of stipe.     |
| 1D. Spore.                    | 1L. Stomatal arrangement of pinna.  |
| 1E. Uniseriate hair of pinna. | 1M. Detailed structure of indusium. |



superam et paginam infernam distinctae; sori usque ad sex in quoque pinna, unus in quoque sinu; indusia suborbiculares ad reniformes, usque ad 1 mm longa, 0.05 mm lata, hirsuta, pilis uniseriatis atrobrunneis c. 0.3 mm longis praedita, cellulae indusii irregularer forma, parietibus cellularum undulatis.

Rhizome short, erect, petiole-bases crowded, scaly at apex; scales triangulate to lanceolate, to 1 mm long, about 0.1 mm broad, dark-brown; stipe up to 4 cm long, blackish to dark-brown, grooved, polished, glabrous except for the sparsely scaly base, xylem strand slightly curved upward throughout; lamina oblong to linear-ovate, pinnate, to about 7 pairs with an ultimate pinna, petiolate, alternate, all about the same size except for the lowest shorter and flabellate, closely spaced but not imbricate, without costa, basiscopic margins straight or slightly curved downward, acroscopic and distal margins incised but not very deep, yet forming lobes, herbaceous or thinner, sparsely hairy with uniseriate dark-brown hairs about 0.3–1.0 mm long, veins dense, distinct on upper and lower surface; sori to six for each pinna, one for each sinus; indusia suborbicular to reniform, up to 1 mm long, 0.05 mm broad, hairy with uniseriate dark-brown hairs, hairs about 0.3 mm long, ground cells of irregular shape with undulating cell walls (Fig. 1).

Sabah. Trus Madi Range eastern slope, Kaintanu Besar River, on steep rocky slope of riverine forest of hill dipterocarp, dominated by *Shorea laevis* and *Shorea monticola*, 12 Nov. 1987, K. Mat Salleh & Zainiruddin H. Harith, KMS 2005 (Holotype UKMB, isotypes UKMS, SING.).

This species is named in honour of Mr. Lamri bin Ali, Director of Park, Sabah in recognition of his continuous support and cooperation in helping to organize a number of field surveys in Sabah especially in the Trus Madi and Crocker Ranges.

### Observations

This species has so far not been found elsewhere on both Trus Madi and Crocker Ranges. Based on his studies on the indusial character of more than 70 species of *Adiantum* worldwide, the senior author has utilised hairy versus glabrate indusium as the first segregating factor for the genus (Bidin, 1980).

Of the eight species of *Adiantum* with hairy indusia, only three species from the Malayan-Bornean region belong to the group, namely *A. diaphanum*, *A. hispidulum* and *A. caudatum*. The new species shows a similar habit where the outer surface of the indusium is hairy with uniseriate or single-celled hairs (Fig. 1M), similar to those found on both surfaces of the pinna. The indusium is composed of uniform ground cells of irregular shape with undulating cell walls (Fig. 1M), resembling the pattern found in *A. hispidulum* (Bidin, 1980).

The stellar system in the stipe of *Adiantum* consists of one or two traces which are usually arranged in an adaxially curved arc and shows a wide range of variations. Based on observation of the xylem configurations of the stipe in 46 species of *Adiantum* from different geographical areas, Bidin (1985) subdivided the genus into 8 groups. Sections made at three different places of the stipe (base, middle and upper) revealed that the new species belongs to the “slightly curved-upward” group to which *A. diaphanum* also belongs (Fig. 1H–1K).

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