

## **PALYNOLOGICAL STUDY OF OUTCROP SAMPLES FROM LAYANG-LAYANG FORMATION, BANDAR TENGGARA, JOHOR**

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There are a number of small Tertiary sedimentary outcrops in Peninsular Malaysia but, very little is known or published about their fossil assemblages. This paper presents the results of the palynological study of the Layang-Layang Formation, Bandar Tenggara, Johor. The location map and the geological map of the area are presented.

Palynological analysis were performed on five outcrop samples from the Layang-Layang Formation near Bandar Tenggara, Johor. The samples were processed according to a standard palynological preparation method after Faegri and Iversen (1975) where samples were treated with hydrofluoric and hydrochloric acids to remove the mineral matrix. Organic residues were recovered after the treatment and mounted onto

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slides for analyses. The slides were then analysed under a transmitted light microscope. Counting and identification of palynomorphs were done at magnification of 400x and 1000x. Identifications were made mainly by comparison to in-house reference specimens or by consultation with published reference material.

The samples which consists mainly of greyish mudstone, contains abundant well preserved palynomorphs. The results are presented in Table 1. The palynomorphs assemblage is dominated by *Discooidites borneensis*, *Pandanidites* sp., *Striatricolpites catatumbus*, *Striatricolporites minor*, *Clavapalmaeidites hamerzii*, *Marginipollis concinuus* and *Heterocalporites* spp. pollen which could have been sourced from the freshwater swamp plant community. Fresh water algae; *Botryococcus* sp., *Pediastrum* sp. and acritachs were also present in abundance. These assemblages suggest that the mudstone of the Layang-Layang Formation could had been deposited in a freshwater lacustrine environment.

The tentative age for the Layang-Layang Formation could be Miocene as indicated by the presence of a few index fossil such as *Lanagiopollis nanggulanensis*, ?*Lanagiopollis emerginatus*, *Calophyllum* tp, *Garcinia* tp, *Pometia* tp, and fungal spores; *Dendromyceliates* spp. The palynomorphs assemblage is also characterized by a high diversity of miospores that can be related to the extant tropical plants. This assemblage supports the suggested Miocene age for the formation.

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