

Geological significance of radiolarian chert in Sabah

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Radiolarian cherts are found associated with ophiolitic rocks in the Chert Spillite Formation and as blocks within the chaotic deposits. The ophiolitic chert association is found as isolated outcrops mainly in Banggi Island, Kudat, Taritipan, Telupid, Segama Valley and Pulau Timbun Mata. The chert sequence consists of thinly bedded chert interbeds with siliceous shale. The sequence overlies the pillow lava, basalt, spilite

serpentinite and peridotite. The chert blocks are found in the Wariu, Ayer, Kuamut and Garinono Complexes. The complexes are composed of blocks of tuffaceous sedimentary rocks, bedded mudstone, sandstone, chert, limestone, and volcanic rocks. These chaotic deposits are considered to have diapiric origins (Mc Manus and Tate, 1986).

Several radiolarian assemblages were identified from the ophiolitic chert association in the Kudat (Basir Jasin and Sanudin Tahir, 1988), Mandurian (Basir Jasin and Sanatulsalwa Hasan, 1992), and Telupid areas (Basir Jasin, 1992). The age of the chert was thought to be Valanginian to Barremian, Early Cretaceous (Leong, 1977; Basir Jasin, 1991). Aitchison (1994) retrieved some Radiolaria from the chert block in the Ayer Complex. He indicates that the age of the chert is pre Albian, Early Cretaceous.

Recently, several chert samples were collected from a chert block in the Wariu Complex and the ophiolitic chert association in Kudat. The chert yielded very well-preserved radiolarian faunas. Several taxa of radiolarians were identified from the chert of the ophiolitic chert association in Kudat. The assemblage consists of:-

- Pseudodictyomitra carpatica* (Lozyniak)
- Ultrrnpora praespinifera* Pessagno
- Thanarla brouweri* (Tan)
- Triactoma tithonianum* Rust
- Sethocapsa asseni* (Tan)
- Dictyomitra communis* (Squinabol)
- Acaeniotyle umbilicata* (Rust)
- Xitus spicularius* (Aliev)
- Archaeodictyomitra lacrimula* (Foreman)
- Pseudoeucyrtis hanni* (Tan)
- Thanarla pacifica* Nakaseko & Nishimura
- Wrengeillium puga* (Schaaf)
- Sethocapsa orca* Foreman
- Pantenellum squinaboli* (Tan) and
- Podobursa typica* (Rust)

This assemblage indicates that the age of the chert ranges from Barremian to Aptian, Early Cretaceous. The Radiolaria from the chert block of the Wariu Complex consists of:-

- Dictyomitra gracilis* (Squinabol)
- Pseudoaulophacus sculptus* (Squinabol)
- Triactoma cellulosa* Foreman
- Xitus spicularius* (Aliev)
- Ultrrnpora praespinifera* Pessagno
- Orbiculiforma maxima* Pessagno
- Stichomitra communis* Squinabol
- Scadiocapsa speciosa* (Squinabol)
- Acanthocircus multidentatus* (Squinabol)
- Acanthocircus levis* Donofrio & Mostler
- Thanarla conica* (Squinabol)
- Triactoma paronai* (Squinabol)

The assemblage indicates the age of Aptian to Cenomanian.

The aim of this paper is to review and revise the age of radiolarian assemblages based on the up to date information and to use geochemical data for environmental interpretation.