Significant and Correlation of Cretaceous Radiolaria from the Darvel Bay Ophiolite Complex and the Kuamut Melange, Kunak, Sabah

Junaidi Asis and Basir Jasin
1Faculty Of Science And Natural Resources, Universiti Malaysia Sabah, Jalan Ums, 88400 Kota Kinabalu, Sabah.
Email: 1junaidi@ums.edu.my, junaidiasis@gmail.com

Abstract
Radiolarian chert was found at the Darvel Bay Ophiolite Complex and the Kuamut Melange at Kunak, Sabah. The Chert in the complex and melange at this area has not been studied yet for its radiolarian assemblage, age, and depositional environment. The purposes of this research are to study the taxonomy of radiolaria presented in chert rock and to determine the age and its depositional environment. The Darvel Bay Ophiolite Complex consists of ophiolitic rock association which comprises peridotite, serpentinite, gabbro, basalt, pillow basalt and overlain by chert. The Kuamut Melange is composed of clasts and blocks of broken Paleogene formations, and dismembered ophiolite block imbedded in shale matrix. A total of 18 samples have been collected from two outcrops of the Darvel Bay Ophiolite Complex at section S1 and S2. Fourteen samples were taken from section S3 and S4 of the Kuamut Melange. All the samples were processed according to micropaleontological methods. Well-preserved selected specimens were photographed by scanning electron microscope. A total of 69 species of radiolarians have been identified and only 50 selected species are used for age determination of the chert. Generally, both rock units yielded three radiolarian assemblage zones. The first zone is Crucella gavalai Zone for the Kuamut Melange and Stichomitra simplex Zone for the Darvel Bay Ophiolite Complex. This assemblage zone is indicative of Aptian to Albian. The second zone is recognized as Xitus mclaughlini Zone which indicates Albian to Cenomanian age. The third zone is Crucella cachensis Zone which is Turonian in age. The zones show that the age of both rock units ranges from Aptian to Turonian. These radiolarian assemblages prove that the radiolarian chert from the Darvel Bay Ophiolite Complex and the Kuamut Melange are of the same age and origin. The chert was originally deposited on an oceanic crust of the marginal basin during Aptian-Turonian and was tectonically deformed into the Kuamut Melange during Miocene.