COMPARATIVE STUDY OF TRACE METAL COMPOSITION IN CORAL SKELETONS, SEDIMENTS AND WATER COLUMNS BETWEEN EAST AND WEST COAST OF PENINSULAR MALAYSIA

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Dengan ini disahkan bahawa saya telah menyemak laporan akhir projek ini dan,

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ABSTRACT

Coral samples from Pulau Redang and Port Dickson were collected and were examined for Sr, I, Br, Mn, Cl, K, Al, V, Na, Ca, Ba and Ti using Neutron Activation Analysis (NAA), and NBS 1646 Estuarine Sediment Standard Reference Material as standard. Water samples were also taken and examined for Zn, Pb and Cd using Graphite Furnace Atomic Absorption Spectrophotometer (GFAAS).

Results indicate a significantly higher concentration ($p<0.05$) of Sr, I, K, Ca, Na, Mn and Cl in the corals of Pulau Redang than in Port Dickson. Sediment samples of Pulau Redang records a significantly higher concentration of Sr, K, and Ca ($p<0.05$) than sediment samples of Port Dickson. Concentration of Pb and Cd in water samples of Port Dickson record a significant difference ($p<0.05$) when compared to the water samples of Pulau Redang. Concentration of trace element in the layers of coral indicate some degradation in water quality, especially in the waters of Port Dickson. Result indicate higher level of pollution in Port Dickson compared to Pulau Redang. The fact that corals can be used as palaeo-environmental indicator of water quality are reinforced in this study.

ABSTRAK

Sampel batu karang dari Pulau Redang dan Port Dickson telah dikutip dan dikaji untuk mengesan elemen-elemen Sr, I, Br, Mn, Cl, K, Al, V, Na, Ca, Ba dan Ti menggunakan Analisa Pengaktifan Neutron (NAA) yang menggunakan `NBS 1646 Estuarine Sediment Standard Reference Material' sebagai piawai. Sampel air juga telah diambil dan dianalisa untuk elemen-elemen Zn, Pb dan Cd menggunakan `Graphite Furnace Atomic Absorption Spectophotometer' (GFAAS).

Keputusan menunjukkan kadar kepekatan yang lebih tinggi dan **bererti** ($p<0.05$) bagi kandungan Sr, I, K, Ca, Na, Mn dan Cl di antara sampel batu karang dari Pulau Redang dengan Port Dickson. Sampel sedimen Pulau Redang juga mencatatkan nilai yang lebih tinggi bagi Sr, K dan Ca dengan perbezaan yang nyata ($p<0.05$) bila dibandingkan dengan sampel sedimen Port Dickson. Kepekatan Pb dan Cd di dalam sampel air dari Port Dickson pula mencatatkan perbezaan nyata ($p<0.05$) bila dibandingkan dengan sampel air dair Pulau Redang. Kepekatan unsur-unsur surih di dalam lapisan-lapisan batu karang menunjukkan penurunan mutu air, terutamanya di perairan Port Dickson. Hasil keputusan menunjukkan bahawa terdapat kadar pencemaran yang lebih tinggi di Port Dickson berbanding dengan Pulau Redang. Hakikat bahawa batu karang boleh digunakan sebagai petunjuk `palaeo-environment' telah diperkukuhkan lagi melalui kajian ini.