GEOCHEMICAL PROFILE IN SEDIMENT OF MARANG MANGROVE FOREST, TERENGGANU

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GEOCHEMICAL PROFILE IN SEDIMENT OF MARANG MANGROVE FOREST, TERENGGANU.

By

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JABATAN SAINS SAMUDERA
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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Geochemical profile in sediment of Marang mangrove forest, Terengganu oleh Syalindran a/l Sevasamgaran, nombor matrik UK 7582 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Sains Samudera, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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ABSTRACT

The geochemical profile of Marang mangrove sediments was studied in two sediment cores. In this study, metals (Mn, Co, Cu and Cr) in the fine-grained fraction (<63 μm) from 2 different sites (station M and station N) were analyzed after acid extraction. The results showed that metal concentrations in the sediments varied from depth to depth. Average concentration of Mn, Co, Cu and Cr in station M is 215.54 ±120.37 ppm, 21.94±10.40 ppm, 14.25±8.47 ppm and 189.32±57.84 ppm respectively. Meanwhile average concentration of Mn, Co, Cu and Cr in station N is 249.62±77.03 ppm, 46.90±12.65 ppm, 12.30±7.19 ppm and 157.85± 34.89 ppm respectively. Al was used for normalization and to assess enrichment factor in order to identify the sources of the chemical element and the result shows most of the chemical elements in both station is naturally occurred. Organic carbon content was also determined and the result for station M is ranging from 1.13 % to 2.66 % with the average of 2.00±0.44 % and organic carbon content in station N is ranging between 1.36 % and 2.63 % with the average of 1.79±0.35 %. There is correlation between organic carbon and heavy metals at both stations. In general, heavy metal concentrations and organic carbon contents in sediment of Marang mangrove forest suggest that the research area is still not polluted very much and all the activities near the area is under control.

ABSTRAK

Suatu kajian telah dijalankan mengenai profil geokimia dalam sedimen di hutan paya bakau Marang dengan menggunakan dua teras sedimen. Menerusi kajian ini, kandungan logam Mn, Co, Cu dan Cr dalam sedimen yang bersaiz <63 μm dikaji selepas ditindakkan dengan asid. Sedimen kajian adalah diperolehi daripada dua stesen kajian iaitu stesen M dan stesen N. Hasil kajian telah menunjukkan bahawa kandungan logam dalam sedimen adalah berbeza mengikut kedalaman. Purata kandungan logam Mn, Co, Cu dan Cr dalam stesen kajian M ialah 215.54 ±120.37 ppm, 21.94±10.40 ppm, 14.25±8.47 ppm and 189.32±57.84 ppm masing-masing. Manakala, purata kandungan logam Mn, Co, Cu dan Cr dalam stesen kajian N ialah 249.62±77.03 ppm, 46.90±12.65 ppm, 12.30±7.19 ppm and 157.85± 34.89 ppm masing-masing. Al telah digunakan untuk normalisasi dan juga untuk mendapatkan faktor pengkayaan bagi mengenalpasti sumber unsur-unsur kimia. Keputusan kajian menunjukkan kebanyakkan daripada unsur-unsur kimia di kedua-dua stesen kajian wujud secara semulajadi. Menerusi kajian ini, kandungan karbon organik bagi stesen kajian M dan stesen kajian N juga telah ditentukan. Keputusan kajian menunjukkan bahawa kandungan karbon organik di stesen M berada di antara 1.13 % dan 2.66 % dan mencatatkan purata sebanyak 2.00±0.44 % manakala kandungan karbon organik di stesen N adalah di antara 1.36 % dan 2.63 % dan mencatatkan purata sebanyak 1.79±0.35 %. Kajian ini telah membuktikan bahawa terdapat hubungan korelasi di antara organik karbon dan logam berat di kedua-dua stesen kajian. Secara amnya, kandungan logam berat dan karbon organik mencadangkan bahawa sedimen hutan paya bakau Marang masih lagi belum tercemar dan aktiviti berhampirannya adalah terkawal.