HEAVY METAL CONCENTRATIONS IN PAHANG COASTAL (SOUTH CHINA SEA) SEDIMENT IN RELATION TO ORGANIC CARBON CONTENT

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FACULTY OF SCIENCE AND TECHNOLOGY
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HEAVY METAL CONCENTRATIONS IN PAHANG COASTAL (SOUTH CHINA SEA) SEDIMENT IN RELATION TO ORGANIC CARBON CONTENT

By

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Research Report submitted in partial fulfillment of the requirements for the degree of Bachelor of Science (Marine Science)

DEPARTMENT OF MARINE SCIENCE
FACULTY OF SCIENCE AND TECHNOLOGY
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA
2005

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DEDICATED TO:

MY DEAREST FATHER, MOTHER AND FAMILY.
THANKS FOR YOUR ENCOURAGEMENT AND SUPPORT.

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LIST OF ABBREVIATIONS/SYMBOLS

SYMBOLS	MEANING
Al	Aluminium
Fe	Ferum
Mn	Manganese
Cr	Chromium
Cu	Copper
µg/g	Microgram/gram
%	Percent

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ABSTRAK

Sebanyak 26 sampel sedimen telah diambil dari Perairan Pantai Pahang (Laut China Selatan) dan dianalisis untuk mengkaji kepekatan Al, Fe, Mn dan Cr. Analisis dilakukan dengan menggunakan kaedah pencernaan sepenuhnya dan dikira dengan menggunakan flame AAS. Sampel juga dianalisis untuk menentukan kandungan karbon organik, taburan saiz sampel dan ciri lain yang mempengaruhi taburan logam berat di dalam sedimen. Keputusan menunjukkan bahawa julat kepekatan logam berat adalah 0.29 - 4.73 % (min dan sisihan piawai 1.54 ± 1.09 %) bagi Al, 0.08 - 3.19 % (min dan sisihan piawai 1.39 ± 0.86 %) bagi Fe, 2.54 to 945.46 μg/g (min dan sisihan piawai 420.80 ± 242.37 μg/g) bagi Mn dan 0.08 to 129.89 μg/g (min dan sisihan piawai 35.40 ± 32.61 μg/g) bagi Cr. Analisis perhubungan korelasi antara logam berat dengan kandungan karbon organik menunjukkan hanya Al menunjukkan berkolerasi positif bermakna dengan karbon organik manakala Fe, Mn and Cr berkolerasi dengan sedimen saiz partikel.

ABSTRACT

Twenty-six sediment samples were collected from Pahang Coastal (South China Sea) and analyzed for Al, Fe, Mn and Cr concentrations. The analysis was carried out using total digestion method and measurements by flame Atomic Absorption Spectrometry (AAS). The sediment were also analyzed for organic carbon content, grain size distribution and other general characteristic that may influence the distribution of heavy metals in sediment. The range of concentrations of metals were 0.29 to 4.73 % (mean and standard deviation of 1.54 ± 1.09 %) for Al, 0.08 to 3.19 % (mean and standard deviation of 1.39 ± 0.86 %) for Fe, 2.54 to 945.46 μg/g (mean and standard deviation of 420.80 ± 242.37 μg/g) for Mn and 0.08 to 129.89 μg/g (mean and standard deviation of 35.40 ± 32.61 μg/g) for Cr. Correlation analysis between metals with organic carbon indicates that only Al had a significant positive relationship to organic carbon while Fe, Mn and Cr were only correlated to sediment particle size.