

Distribution of Heavy Metals in Core Marine Sediments of Coastal East Malaysia by Instrumental Neutron Activation Analysis and Inductively Coupled Plasma Spectroscopy

Ahmadreza Ashraf^{a,*}, Elias Saion^a, Elham Gharibshahi^{a,c}, Chee Kong Yap^b, Halimah Mohamed Kamari^a, Md Suhaimi Elias^d, Shamsiah Abdul Rahman^d

^aDepartment of Physics, Faculty of Science, University of Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

^bDepartment of Biology, Faculty of Science, University of Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

^cDepartment of Physics and Astronomy, University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249, U.S.A

^dMalaysian Nuclear Agency, Bangi, 43000 Kajang, Selangor, Malaysia

*Corresponding Author: Ahmadreza Ashraf. ahmadashraf.2007@yahoo.com

Abstract

Fifty-five core marine sediments from three locations at South China Sea and one location each at Sulu Sea and Sulawesi Sea of coastal East Malaysia were analyzed for heavy metals by instrumental neutron activation analysis and inductively coupled plasma mass spectroscopy. The enrichment factor and the modified degree of contamination were used to calculate the anthropogenic and pollution status of the elements in the samples. The enrichment factor of As, Cd, Cr, Cu, Ni, Pb, and Zn varied from 0.42 to 4.26, 0.50 to 2.34, 0.31 to 0.82, 0.20 to 0.61, 0.91 to 1.92, 0.23 to 1.52, and 0.90 to 1.28, respectively, with the modified degree of contamination values below 0.6. Comparative data showed that coastal East Malaysia has low levels of contamination.

Keywords

INAA and ICP-MS method; Core marine sediments; Heavy metals; Enrichment factor; Modified degree of contamination; East Malaysia

1. Introduction

Marine sediments, which are the basic components of a water body, provide food for benthic living organisms (Huang et al., 2009). They have always been considered a reservoir for a

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