

Distributions of heavy metal in the surface sediments of mangrove from west coast of Peninsular Malaysia

ABSTRACT

A study is carried out on the concentrations of heavy metal of arsenic (As), copper (Cu), lead (Pb) and zinc (Zn) present in surface sediments from 10 locations throughout west coast Malaysia. Instrumental neutron activation analysis (INAA) and Atomic Absorption Spectroscopy (AAS) method was used to determine element concentrations in the entire samples. Samples were dried and crushed to powdery form before preparation for INAA and AAS. As calibration and quality control procedures, blank samples, standard reference material IAEA-Soil-7 and SL-1 were analyzed same conditions as the samples. The mean concentrations of As, Cu, Pb and Zn on sediment samples ranged from 8.75 to 44.60, 5.70 to 69.45, 13.16 to 34.52 and 34.17 to 348.10 mg/kg respectively. The enrichment factor value of sediments varied from 0.21 – 9.18. Degree of contamination (Cd) and modified degree of contamination (mCd) of all the heavy metal fall in the range between 2.81 – 7.74 and 0.70 – 1.94 respectively. Sediments of the Juru (L5) are contaminated by Zn, while the sediment from Lukut (L8) and Kampung Panchor (L6) was heavily contaminated by As.

Keyword: Heavy metal; Spectrometry; Enrichment; Contamination factor; Neutron activation