Study of Metals Contamination (Ni, Zn and Pb) in Surface Sediments of Shoor River Estuary, East of Bandar Abbas

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Abstract

Toxicity of trace metals in the environment, bioaccumulation in aquatic environments and in food chains are of great importance. In this study, concentrates on the distribution patterns of some heavy metals (Pb, Ni and Zn) in surface sediments of Shoor River estuary to obtain an overall classification for the origins of the metals in the studied area. In order to determine the degree of Contamination and environmental quality of the sediments of region, surface sediment (0-5 cm) samples were collected from 4 stations in winter. At each station, three surface sediment samples were collected and the concentration of heavy metals were measured using a flame Atomic Absorption Spectrophotometer; Then Geochemical Accumulation Index (Igeo) for each of the sampling stations applied. Geochemical accumulation index values indicated the contamination level of Ni and Pb is unpolluted; while Zn in the two stations near to the city has state unpolluted to moderate pollution. The mean values of these metals compared with our concentration in aquatic ecosystems elsewhere in the world and with sediment quality guidelines. The average concentrations of Zn (146.42 ug/g) was higher than the HAL standard and lower than LAL standard, the average concentration of Ni (77.63 ug/g) was higher than the sediment quality standards and the average concentration of Pb (6.12 ug/g) was lower than these standards. The average values of Ni and Zn in the study area, in compared to the most of other areas had higher values; while Pb values were lower than the values of most these areas. Nevertheless, due to rapid urbanization and industrial development of Bandar Abbas, monitoring of heavy metals contamination in the study area due to its ecological importance is necessary.

Keywords: heavy metals, geochemical accumulation index, estuary, sediment.

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