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The Study of Pollution and Environmental Impact of Heavy Metals, and Chemical and Physical Variables Associated with the Distribution of These Elements in Continental Shelf Sediments of the Gulf of Oman, Chabahar Area

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Abstract

The purpose of this study is to evaluate the distribution pattern of heavy metals and their possible environmental effects on the human food chain, using statistical analysis of physical and chemical variables of the continental shelf sediments of the Gulf of Oman. Discriminant data analysis shows the flow pattern from west to east water that suggests the source of sediments on the continental shelf of Oman is the Makran region. Distribution and dispersal of elements in sediments of the study area depend on the element type, abundance of clay minerals, organic maters and carbonate. High level of As, Cr, and Rb in marine sediments can be a factor for the pollution of marine environment and for entering these elements in humans food chain. Cr in the near-shore sediments in the study area is relatively high and about 3 times more than standard. The high amounts of Rb (4 times more than standard) can be correlated with higher comment of carbonate in near shore sediments and can be entered into the food chain and drinking water as dissolved ions. Arsenic (As) does not show any correlation with physical and chemical variables, and does not depend on geological processes, therefore its increase in the region can be the reason of human activities.

Keywords: *Physical and chemical variables, Discriminant analysis, Distribution pattern and element of distribution, Food chain.*