

Application and Limitation of Heavy Metal Pollution Indicators in Coastal Environment of Pakistan

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Abstract : Oceans and Marine areas have a great importance, mainly regarding food resources, fishery products and reliance of livelihood. Aquatic pollution is common due to the incorporation of various chemicals mainly entering from urbanization, industrial and commercial facilities, such as oil and chemical spills. Many hazardous wastes and industrial effluents contaminate the nearby areas and initiate to affect the marine environment. These contaminated conditions may become worse in those aquatic environments situated besides the world's largest cities, which are hubs of various commercial activities. Heavy metal contamination is one of the most important predicaments for marine environments and during past decades this problem has intensified due to an increase in urbanization and industrialization. Coastal regions of Pakistan are facing severe threats from various organic and inorganic pollutants, especially the estuarine and coastal areas of Karachi city, the most populated and industrialized city situated along the coastline. Metal contamination causes severe toxicity in biota resulting the degradation of Marine environments and depletion of fishery resources and sustainability. There are several abiotic (air, water and sediment) and biotic (fauna and flora) indicators that indicate metal contamination. However, all these indicators have certain limitations and complexities, which delay their implementation for rehabilitation and conservation in the marine environment. The inadequate evidences have presented on this significant topic till the time and this study discussed metal pollution and its consequences along the marine environment of Pakistan. This study further helps in identification of possible hazards for the ecological system and allied resources for management strategies and decision making for sustainable approaches.

Keywords : coastal and estuarine environment, heavy metals pollution, pollution indicators, Pakistan

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