

The Study of Heavy Metals (Hg, Cd, Pb and Cu) Levels in Sediments of North-West of Persian Gulf - Imam Khomeini Port

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Abstract

The port of Imam Khomeini is located in the north-west of the Persian Gulf where ships and vessels traffic and the existence of several industries especially petrochemical industries caused the influx of various organic and non-organic contaminants such as heavy metals into the ecosystem. Heavy metals are the major group of dangerous contaminants in marine environment. Due to their persistence, they may enter aquatic food chains and transfer from one trophic level to another. They may be harmful for human being which is placed at the top of the food chain. In this study, sediments were sampled from 5 stations including harbors of Petrosimi, Doc Sorsoreh, No.15, No. 28 and No. 33 in the port of Imam Khomeini during March 2010. The samples were freeze dried and acid digested in order to determine their heavy metal content using Atomic Absorption Spectrophotometry. The ranges of Hg, Cd, Pb and Cu in sediments were 0.5 to 4.4, ND (≤ 0.5), 3.2 to 8.2 and 15.2 to 19.8 $\mu\text{g/g}$ of dry weight respectively. The highest contamination of Hg, Pb and Cu were measured in harbor of Petrosimi station while the lowest level of these metals was measured in harbor No. 28. Among all metals, concentration of Hg in sediments were more than standard limits. This can be dangerous for public health. Therefore, regular monitoring of heavy metals, especially mercury in this area is recommended.

Keywords: Pollution, Heavy metals, Sediments, Imam Khomeini Port, Persian Gulf.
