

## Polycyclic Aromatic Hydrocarbons (PAHs) in Seawater Intertidal Areas of Boushehr Province (Persian Gulf)

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Received Date: February 2011

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Accepted Date: August 2011

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### Abstract

The Persian Gulf area has approximately two-thirds of the world's oil resources and many of the marine ecosystems of its areas are seriously threatened by oil pollution. Therefore, the study on the status of pollution in the Persian Gulf is considerable. Polycyclic aromatic hydrocarbons (PAHs) are one of the major groups of chemical pollutants owing to their widespread distribution in the environment and carcinogenic and mutagenic effects on living organisms. In this study, concentrations of 14 PAHs and their sources in the seawater of Boushehr province in two seasons were determined. Samples of seawater were collected from four sampling sites, namely Genaveh, Boushehr, Dayyer, and Nyband Gulf. Collected samples were immediately transferred to hexane-rinsed glass jars with aluminum foil inserts and transported in dry ice to the laboratory of PGRSC and kept frozen at -20 °C prior to analysis. Seawater samples were extracted using a liquid-liquid extraction (LLE). The recovery of PAHs was more than 70%. The total concentrations of 14 PAHs in seawater ranged from 1.5 to 5.9 ng/l. The results showed that the concentration of PAHs in surface seawater in the inter-tidal areas of Boushehr province is very low, comparing to other areas of the Persian Gulf and world-wide. The highest concentration was observed at Nyband station. The results of the study suggested that the main sources of PAHs in coastal areas of Boushehr province is a mixture of both pyrolytic and petrogenic with predominant petrogenic inputs. Three- and four-ring PAHs were the most abundant compounds among the 14 PAHs investigated in surface seawater samples.

Keywords: Persian Gulf, Polycyclic aromatic hydrocarbons, Liquid-liquid extraction, Coastal of Boushehr

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