Concentration Polycyclic Aromatic Hydrocarbons in Coastal Waters of Bushehr Port

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Abstract

In order to study concentration of polycyclic aromatic hydrocarbons in seawater from Bushehr coast and for comparison with available guidelines samples of seawater were collected from five different stations along the Bushehr coast in August and February 2011. PAHs were extracted by Hexane solvent and analyzed using HPLC system (Knauer). Results showed that tPAHs concentration in seawater were 31.0, 20.8, 4.0, 17.6 and 12.3 µg l^{-1}, in August and 38.4, 23.0, 5.4, 19.3 and 17.2 µg l^{-1} in February respectively, at stations Rafael, Sheghab, Abshirinkon, Lian and Helyleh. The concentrations of tPAHs in the seawater were not significantly different during August and February ($P>0.05$). Significant difference was observed between tPAHs concentration between the stations ($P<0.05$). The tPAHs concentration was maximum in Rafael and its minimum was found in Abshirinkon., The tPAHs concentration in Bushehr area was relatively higher compared to other locations of the world. Even though concentrations of anthracene, phenanthrene, fluoranthene and pyrene were above the Canadian Environment Guidance, the carcinogenic compounds appeared in lower concentrations than the non-carcinogenic PAHs. Since Bushehr coastal waters is contaminated by PAHs, precise monitoring and control of oil discharge into the coastal waters as well as reduction of urban effluents input should be undertaken. Meanwhile the continuous monitoring of PAHs compounds in the area is recommended.

Keywords: PAHs, Coastal water, Bushehr, Iran.

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