

A Investigation of Nickel and Vanadium Ratio from Oil Pollution in Sediments and Rocky Shore Oysters (*Saccostrea cucullata*) in Bushehr Coasts (Persian Gulf)

Mirza, Roozbeh^{1*}; Fakhri, Ali²; Faghiri, Iraj³; Azimi, Ali⁴

1- Lecturer, Persian Gulf Research and Studies Center, Persian Gulf University, Bushehr, Iran. Email: roozbeh_mirza@yahoo.com

2- M.Sc., Persian Gulf Research and Studies Center, Persian Gulf University, Bushehr, Iran. Email: alif140@yahoo.com

3- M.Sc., Bonyad Barandaz Company, Bushehr Branch, Bushehr, Iran. Email: iraj.faghiri@gmail.com

4- Iranian National Institute for Oceanography and Atmospheric Science, Iran, Tehran. Email: a.azimi@yahoo.com

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*Corresponding Author

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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 oil pollution in the Persian Gulf is considerable. Vanadium and Nickel are by far the largest traced metal constituents of crude oil. Their presence in high concentration in marine sediments may indicate direct input from oil pollutants. Therefore, Vanadium and Nickel are two important indicators of oil pollution. In this study, concentrations of these elements as well as their ratio (V/Ni) in the rocky shore oysters (*Saccostrea cucullata*) and in the sediments of Bushehr province coasts were determined. The sampling and analysis were performed in February 2012. Samples were collected from rocky shores of four stations; Genaveh, Bushehr, Dayer and Nyband Gulf. The samples were acid digested and analyzed for heavy metal content using an Atomic Absorption Spectrophotometer (YOUNGLIN, Model ASS 8020). The average concentrations of Ni and V in the sediment samples were varied from 22.48 to 51.10 µg/g dry weight and 7.64 to 31.53 µg/g dry weight, respectively. While their average concentrations in oyster sample were varied from 4.22 to 10.51 µg/g dry weight and 1.26 to 6.2 µg/g dry weight, respectively. The V/Ni ratios of the Persian Gulf crude oil/residues do not correlate with those of the sediments due to the alteration of the relationship between the two metals in the sediments. Based on Muller geochemical index (Igeo), sediment quality for Ni and V is in class 0 (unpolluted).

Keywords: *Bivalvia*, *Gastropoda*, Identification, Bandar Abbas.
