

## **Biogeochemical Study of Polycyclic Aromatic Hydrocarbons and Its Physiological Response in Mudskipper (*B. dussumieri*) along the Northwestern Coasts of the Persian Gulf**

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**Abstract :** Study on the biomarkers to assess health status of marine ecosystems has an important value in biomonitoring of marine environment. Accordingly, accumulation of polycyclic aromatic hydrocarbons in sediment, water and tissues (liver and gill) of mudskipper (*Boleophthalmus dussumieri*) and some physiological responses like lysosomal membrane change in haemocytes and the Glutathione-S Transferase (GST) activity in the liver were measured in mudskippers. Samples were collected from five sites along the northwestern coast of the Persian Gulf. PAHs concentration was measured by HPLC method. The activity of GST enzyme was analysed by spectrophotometric method. Total PAH concentration in coastal seawater, sediments, liver and gill tissues ranged between 0.80-18.34  $\mu\text{g/L}$ , 113.550-3384.34  $\text{ng/g dw}$ , 3.99-46.64  $\text{ng/g dw}$  and 3.11-17. This study showed that PAH concentrations in this region are not higher than available standards. The findings reveal that lysosomal membrane destabilization and liver GST activities are highly sensitive to PAHs in mudskipper, *B. dussumieri*. Sediment PAH concentrations were strongly correlated with biomarkers, indicating PAHs were biologically available to fish. Thus, mudskipper perceived to be good sentinel organism for PAH pollution biomonitoring.

**Keywords :** PAHs, biomarker, mudskipper, Persian Gulf

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