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**GREY MANGROVE *Avicennia marina* (FORSK.) VIERH.  
AS A BIO-INDICATOR TO MEASURE NICKEL, MERCURY  
AND CADMIUM: A CASE STUDY AT PERSIAN GULF PORT  
SHORELINE, KHUZESTAN, IRAN**

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**Abstract**

This study attempted to measure the amounts of nickel, mercury and cadmium in leaves of *Avicennia marina* and sediments at Persian Gulf port shoreline in Iran to investigate their use as bio-indicators. Mean concentrations of Hg ( $0.02 \pm 0.00$  mg/kg), Cd ( $0.79 \pm 0.13$  mg/kg) and Ni ( $60.81 \pm 0.00$  mg/kg) in the sediments were higher when compared with values registered in leaves to each metal (Hg:  $0.01 \pm 0.00$  mg/kg; Cd:  $0.13 \pm 0.03$  mg/kg; and Ni:  $1.47 \pm 0.35$  mg/kg). Regression analysis showed a significant association between accumulation of Ni and Hg in the leaves in relation with the concentration of these same metals in the sediments ( $p < 0.05$ ). This fact was not confirmed for Cd ( $p > 0.05$ ). Results of this study also demonstrated that leaves of *A.marina* are not a proper accumulator for Ni and Hg. However, this was not available for Cd.

*Keywords:* *Avicennia marina*, bio-indicator, heavy metals, metal accumulation

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