**ABSTRACT**

Heavy metals are considered to be the most common environmental pollutants in waters and biota; that indicate presence of effluents associated with industrial and domestic sources. The present study aimed to evaluate the trace metal accumulation (Fe, Mn, Zn, Cu, Cd, Pd and Ni) in the tissue of radiate top shell, the sediment and water samples collected from the Hare Island, Tuticorin, during May 2015 to April 2016. During the study, the metal accumulation in the Water, Sediment and Tissue were in the order of Zn > Pb > Cu > Cd; Fe > Mn > Zn > Cu > Cd; Fe > Zn > Mn > Cu > Cd > Pb > Ni respectively. The concentration of Fe dominated in the sediment and tissue sample throughout the study period. Elevated levels of trace metals especially Fe, Mn, Cu, Pb and Zn was observed during October to December, i.e., during the northeast monsoon in all the samples. One way ANOVA indicated statistically no significant difference (p > 0.01) in the variation of Fe, Mn and Ni within the samples.