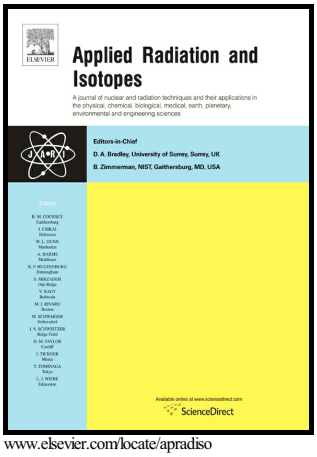

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Statistical Assessment to Magnetic Susceptibility and Heavy Metal Data for Characterizing the Coastal Sediment of East Coast of Tamilnadu, India

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Abstract

A rapid urbanization and industrialization enhances the significant heavy metal pollution in the sediments of coastal area and introduced a serious threat to the human health. In the present study, concentration of heavy metals such as Al, Ti, Fe, V, Cr, Mn, Co, Zn, La, Pb, Mg, Ca, Ni, Cd and Ba are determined in sediments along Periyakalapet to Parangaipettai coastal area, Tamilnadu using energy dispersive X-ray fluorescence spectrometer (EDXRF).These metals have more affinity to establish metallic bond with ferrous material leading to enhancement of sediment magnetic susceptibility. Hence, a magnetic susceptibility (χLF, χHF, χFD) measurement was carried for sediments by using MS2B dual frequency susceptibility meter. Multivariate statistical analysis (Pearson correlation, factor and cluster analysis) was carried out between heavy metals and magnetic susceptibility to assess the anthropogenic impact in the sediments. The study revealed that a magnetic susceptibility measurement is an inexpensive, fast, non-destructive and suitable method to identify the heavy metal pollution sources.