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HEAVY METAL DISTRIBUTION IN THE SALT PANS OF TUTICORIN, TAMIL NADU, INDIA

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Abstract

In Tuticorin (Thoothukudi), salt is being produced by solar evaporation of brine in ponds. Its industrial environment warrants a heavy metal pollution potential assessment. During the process of solar evaporation, brine is conveyed through reservoir and condenser, to crystallize salt in crystallizer ponds and eventually exit as bittern. In this process, it deposits heavy metals on the pond floors which in turn may adhere to the crystallized salt. Thus, heavy metal quantification and path analysis becomes imperative in terms of pollution potential. The enrichment of heavy metals in salt pan sediments and salt potentials biological risk for the salt pan ecosystem and the consumers of salt. Hence heavy metal distribution was estimated in 16 samples from different pond floors of four salt pans viz. Spic Nagar, Tharuvaikulam, Veppalodai and Roche Park and the description and discussion of the same are presented here. Fe (31.41), Ni (21.76), Pb (15.97), Cu (6.63), Zn (5.07) and Cd (3.27) are the heavy metals observed (with respective average concentrations in mg/kg). In this study, its levels are estimated stage wise, so as to infer it's loading onto the salt produced. These heavy metal pollutants can be traced to effluents of nearby industries and the domestic dumps. Heavy metal presence in the sediments, signals toxicity for the salt consumers.

Keywords: Tuticorin salt pan, salt pan sediments, heavy metal pollution, solar salt farm