Spatial distribution of heavy metals in Msimbazi River mangrove sediments in Dar es Salaam coastal zone, Tanzania

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Abstract

This article, reports on distribution of heavy metals in sediments of the Msimbazi River mangrove forest. The levels of heavy metal decreased with increasing depth as well as with increasing distance from mangrove to the Indian Ocean shoreline. The total metal levels of heavy metals ranged from 1000 ppm to 27000 ppm (iron, Fe), 16 ppm to 173 ppm (zinc, Zn), 3.1 ppm to 76 ppm (lead, Pb), 13.2 ppm to 71.2 ppm (chromium, Cr), 6.9 ppm to 22.5 ppm (nickel. Ni), 4.1 ppm to 17.4 ppm (cobalt, Co) and 0.03 ppm to 3.90 ppm (cadmium, Cd). These observations indicate that, Msimbazi River sediments have high metal retention. This is attributed, among other factors, to clay contents at 0-50 cm core that ranged from 15.78% to 85.04 % and its content decreased with increasing depth. Thus, the Msimbazi River sediments play a role in filtering heavy metals from the wastewater flowing through it prior to its discharge into Indian Ocean.