HEAVY METAL POLLUTION STUDIED IN AN INDUSTRIAL SUBURB

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Major source of contamination due to Copper, Zinc, Cadmium and Lead comes from the brass foundary works in the Kelaniya area. During the manufacture of the brass items, the molten zinc/copper alloy is converted to the required shape by the use of moulds made out of soil. This heavily contaminated soil releases copper, zinc, cadmium and lead to the environment.

This paper presents the extent of pollution due to these metals in well water, soil and vegetation in the area. Significantly higher levels of these metals were found in soil samples (mean values Cu-6652.8, Pb-483.64, Cd-146.8 and Zn-4085.6 mg/kg) and the concentrations in well water (mean values Cu-4.167, Pb-0.095, Cd-0.065, and Zn-10.91 ppm) were above the WHO guideline values. The toxicity of soils caused by these metals is demonstrated by the inability of some plants to grow in this area.

The mean zinc to cadmium ratio for soil samples were found to be 24.933. This ratio plays a vital role in the effect zinc has on living organisms, While copper is an essential element in most organisms, the range between deficiency and toxicity is low in those without effective barriers to control absorption. Inhalation of freshly formed fumes of metal oxides presents the most significant effect.

The Anodic Stripping Voltametry was employed to measure the concentrations of these metals.

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References

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