

ABSTRACT

This study assessed chromium pollution in soils, plants, water and slag from a ferrochrome smelting plant in Gweru, Zimbabwe. Speciation of chromium in plant leaves, soil and slag samples was carried out by selective leaching of Cr(VI) using a sodium carbonate leaching procedure prior to the spectrophotometric determination of Cr (VI). Total Cr and Cr (III) concentration in the samples were analyzed by Flame Atomic Absorption Spectroscopy following aqua regia and oxidative acid digestion. The average concentration of Cr (VI) in soil (1.0301 ± 0.0854) $\mu\text{g g}^{-1}$ and plant (0.3372 ± 0.0168) $\mu\text{g g}^{-1}$ samples were higher relative to control samples with the contamination factors of 3.2 and 3, respectively. Leaching of hexavalent Cr indicated its poor solubility in water (0.00141 $\mu\text{g g}^{-1}$).