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Chemical composition of urban soils in the vicinity of steel industry

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Contamination of soil due to human activities has become a serious concern to both environment and public health. The Piracicaba city, in the state of São Paulo, Brazil, is a highly industrialized area with a large concentration of steel industries. The fumes, liquid and solid waste generated by these industries may contain chemical elements that cause environmental and health problems. In the past decades, due to the absence of environmental regulations and high costs of treatment and disposal of residues, some companies deposited huge amounts of solid waste within the urban area of Piracicaba. In this context, this work focuses on the determination of chemical elements in soils collected in the vicinity of steel industries by instrumental neutron activation analysis (INAA) to evaluate the influence of such solid waste deposits on the soil composition. Soil samples were taken at 3 depths in 21 sampling points, covering an area of about 80 km². As, Ba, Br, Ce, Co, Cr, Cs, Eu, Fe, K, La, Na, Nd, Rb, Sc, Sm, Ta, Tb, Th, Yb and Zn could be determined in the samples. Among such elements, As and Cr should be emphasized for presenting high concentrations in various sampling points, with several values exceeding the warning limits established by the environmental legislation of São Paulo State (15 mg/kg for As and 75 mg/kg for Cr).

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