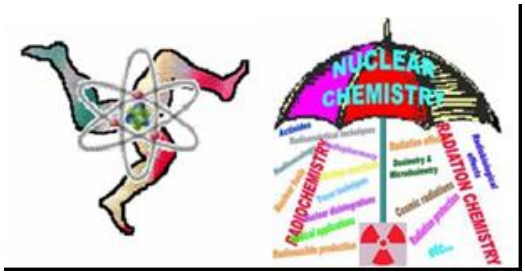

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Instrumental Neutron Activation Analysis applied to multielement determination in lettuce grown in phosphate treated contaminated soil

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In recent decades, anthropogenic activities, particularly those associated with industrial processes and mining, have been the major source of inorganic element enrichment in soils. Unlike organic contaminants, most inorganic elements do not undergo microbial or chemical degradation therefore their total concentrations remain in soils for a long time after their apparence. In this case, due to the possibility these elements present at toxic levels to plants which can reach the food chain, the interest in developing of technologies for remediating contaminated sites has increased. The addition of substances capable of immobilizing toxic elements in the soil is a procedure that has been used for remediating contaminated sites. The purpose of this study was to evaluate the efficiency of super phosphate in the treatment of a soil contaminated with elements that can be potentially toxic. Different doses of super phosphate (250, 500, 1000, 2000 and 4000 mg kg-1 of P) were added to a number of lettuce plant pots contain contaminated soil. The element concentrations absorbed in the leaves from lettuce treated with phosphate were compared with those absorbed in the leaves of a control plant. Instrumental neutron activation analysis (INAA) followed by gamma-ray spectrometry was the analytical method used to determine element contents in the lettuce leaves. The use of 250 mg kg-1(P) proved to be the most effective treatment to reduce the concentrations of Br, Ca, Cd, Cl, Co, Fe, K, Mg, Mn, Sb and Zn in lettuce leaves.

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