THE MODELING OF PHYTOREMEDIATION PROCESS FOR SOILS POLLUTED WITH HEAVY METALS

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Abstract
The state of bioavailability of heavy metals in soil is influenced by their concentration in soil solution. Some trace elements are involved in key metabolic activities such as respiration, photosynthesis and nutrient uptake and fixation. Transition metal group elements are known as enzyme activators or are incorporated in metallo-enzymes as electronic transfer systems. These metals can also serve as catalysts to change valence in the substrate. A basic requirement for optimal growth and development of plant is the chemical equilibrium, based on the interaction of elements found in the body. Each metallic element is accumulated differently by plants; the factors influencing their absorption are the species and metal content of soil. The absorption of Cu is strongly influenced by metal concentration in substrate and less by the species. Among other heavy metals, Ni and Cr in soil strongly influence the absorption of copper, and among the macronutrients, P has a synergistic effect. Zinc absorption is also dependent on the species and the metal concentration in soil. Among heavy metals, the Pb content in soil has the greatest synergistic effect on the absorption of Zn, as Mn and Cr in soil. The Sn absorption in plants is influenced most strongly by species than the presence of Sn in soil. Among the macronutrients, Ca and P have the greatest influence on the absorption of Sn in plants. Absorption of lead in plants is dependent on metal concentration in soil and is very strongly influenced by the content of Zn, Cr and Mn in the soil.

Key words: bioavailability, heavy metals, absorption

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