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Caracterización de la absorción de Cu, Ni y Zn por el médano (*S. kali*) para propósitos de
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Abstract

Tumbleweed plants (*S. kali*) accumulate considerable amounts of Pb, Cd and Cr in their tissues. Moreover, this plant has been proposed as a potential Cd hyperaccumulator. In order to obtain a more complete profile for metal accumulation and tolerance, experiments were conducted in agar media individually contaminated with 0-40 mg L⁻¹ of Cu(II), Ni(II), and Zn(II). Zn was rather beneficial as it promoted root and shoot elongation as well as biomass accumulation. Plants exposed to Cu accumulated 1300 mg kg⁻¹ dry weight in the aerial plant part, indicating a potential hyperaccumulation. X-ray absorption spectroscopic (XAS) studies showed that tumbleweed plants absorb and move Zn and Ni from the roots to the leaves without changes in oxidation state and coordination environment; however, Cu is transported to the aerial part probably bound to different compounds in different plant tissues. Oxygen/nitrogen were identified as ligands for Zn; Cu was observed complexed to sulfur and oxygen, while Ni was bound to nitrogen/oxygen. The results obtained in this research indicate that *S. kali* can be considered as an option to cleanup polluted soils containing moderate amounts of Cu, Ni, and Zn.

Keywords

S. kali, Cu, Ni, Zn, phytoremediation, XAS studies.

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