

عنوان مقاله:

Phyto-extraction of Lead, Zinc and Cadmium by sunflower (*Helianthus annuus* L.) Cultivars

محل انتشار:

دومین کنفرانس بین المللی توسعه پایدار، راهکارها و چالش ها با محوریت کشاورزی، منابع طبیعی، محیط زیست و گردشگری (سال: 1394)

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خلاصه مقاله:

Phytoextraction is a type of phytoremediation technology that utilizes plants from cleanup of metal-contaminated soils. The success of phytoextraction depends on the selection of suitable species that produce large biomass and also tolerate and accumulate heavy metals. Among these species, Sunflower was selected because it showed the most appropriate properties for phytoextraction. a pot experiment was conducted to test the ability of Sunflower cultivars to extract Zn, Pb and Cd from contaminated soils. The field soil was artificially contaminated to different levels of Zn, Pb and Cd in this experiment. The experiment was arranged as a factorial experiment based on randomized complete design with three replications. The biomass production of different treatments and concentrations of heavy metals in above and below ground parts of the three cultivars were measured after harvest. The results showed that the concentrations of Zn and Pb in above and below ground parts of Sunflower were high but Pb concentrations were higher in the below ground portion of the plants. The highest concentrations of Pb, Zn and Cd in below ground part of Sunflower were 97, 632 and 40 mg kg⁻¹ respectively. Whereas these concentrations in above ground part of Sunflower for Pb, Zn and Cd were 31, 632 and 47 mg kg⁻¹ respectively. The Lakomka cultivar had a higher biomass Cd Zn. Generally, the heavy metals uptake and biomass production و production and the highest concentration for Pb of this cultivar were better than the others.

کلمات کلیدی:

phyto-remediation, phyto-extraction, soil remediation, sunflower, heavy metals

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