

Potential of Safflower (*Carthamus tinctorius* L.) for Phytoremediation of Soils Contaminated with Heavy Metals

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Abstract : A field study was conducted to evaluate the efficacy of safflower plant for phytoremediation of contaminated soils. The experiment was performed on an agricultural fields contaminated by the Non-Ferrous-Metal Works near Plovdiv, Bulgaria. The concentrations of Pb, Zn and Cd in safflower (roots, stems, leaves and seeds), safflower oil and meal were determined. A correlation was found between the quantity of the mobile forms and the uptake of Pb, Zn and Cd by the safflower seeds. Safflower is a plant which is tolerant to heavy metals and can be grown on contaminated soils, and which can be referred to the hyperaccumulators of cadmium and the accumulators of lead and zinc, and can be successfully used in the phytoremediation of heavy metal contaminated soils. The processing of seeds to oil and using the obtained oil for nutritional purposes will greatly reduce the cost of phytoremediation. The possibility of further industrial processing will make safflower economically interesting crops for farmers of phytoremediation technology.

Keywords : heavy metals, phytoremediation, polluted soils, safflower

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