



1 EDTA and EDDS enhanced phytoextraction of metals from contaminated soils and their residual effects

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The potential of 18 different plants to be used in chemically enhanced phytoextraction of Cu, Pb, Zn and Cd was assessed using pot experiments. The results showed that garland chrysanthemum (*Chrysanthemum coronarium* L.) was the most sensitive plant species to the application of EDTA, and had the highest enhancement of Cu, Pb, Zn and Cd concentrations in the shoots among all the plants tested. For Cu and Pb, 9.5- and 69-fold increases of metal concentrations were achieved 7 d after the application of 3 mmol/kg of EDTA, respectively. Compared with EDTA, EDDS was more effective in enhancing the concentration of Cu in the shoots of garland chrysanthemum and corn (*Zea mays* L.) grown on multi-metal contaminated soils. For Pb, when the chelate application rate was lower than 5 mmol/kg, EDTA was more effective than EDDS in increasing the concentration of Pb in the shoots of the two plants. The study

of the residual effects of various chelate treatments in soils indicated that the EDTA treated soil still had significant ability in enhancing the concentrations of Cu and Pb in the shoots of corn six months after the chelate treatment. However, the EDDS treated soil did not have any effects in enhancing the concentrations of metals in the shoots of corn in the second crop test. The results may indicate the fast biodegradation of EDDS in soils in comparison with EDTA.