



**Comparison effect between organic and synthetic complexes on increasing the
phytoremediation efficiency of corn, clover and alfalfa in heavy metal
polluted soils**

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The heavy metal polluted soils make big problems around the world. Phytoremediation is a direct method for soil remediation, in which, plant decreases the pollutions with sedimentation and decomposition of pollutant complexes in rhizosphere, selective absorbion and heavy metal association in their tissues. So with the help of organic and synthetic substances which can complex with heavy metals, these pollutants will become more soluble in soils and plants can absorb them more easier and faster. The experiment was done with 3 treatments of plants (Corn, Clover, Alfalfa) in 2 levels of pollutants: 450 ppm which included [Cd (50 ppm), Pb (400 ppm)] and 900 ppm which included [Cd (100 ppm), Pb (800 ppm)], 2 levels of animal fertilizer (20,50,ton/hect) and one pot was used as control . After 2 weeks, we added citric acid, EDTA at (0, 10, 20, mmol/kg) with irrigation water to pots. After the growth period, we analyzed the soils and plants and the results showed that different chelates have different effects on heavy metal absorbance with plants and their growth and yield. The result also showed that in high level of fertilizer treatment using of chelates increases the absorbance ability of Cd and Pb, and this causes an increase in movement of these elements from the roots to the shoots, These results showed significant difference in comparison with the control pot and the highest related to 50 ton/hect level of animal fertilizer. The result showed that the Cd and Pb solvability in the soil treatment in which, the chelates were added, were meaningful in the probable level of 1%. Also the uptake index and transfer coefficient of Cd and Pb in comparison with the control treatment showed a meaningful increase because of the positive rule of organic fertilizers in soils characteristics. Between the plant treatments, the maximum, uptake index was shown in corn and it can be selected as the best plant for phytoremediation.

Keywords: Phytoremediation, heavy metals, organic fertilizers, EDTA

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