


# Green Remediation Of Polluted Soils By Using Commercially İmportant Crop Gossypium Hirsutum

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## Abstract

Heavy metals which are well-known hazardous pollutants have been released to soil and groundwater due to the several industrial and anthropogenic activities. Metal toxicity is affects soil flora, plants, animals, and finally to humans through the food chain. It has been reported that heavy metals have a carcinogenic and neurodegenerative effect on human health. Bioremediation, which is the most promising next generation technology for cleaning of environment, offers an eco-friendly and cost-effective approach.Cotton (*Gossypium hirsutum* L.), which is one of the major commercial plant and not directly involved in the food chain, is a good candidate to prevent the transfering of heavy metals to humans through the the food chain and to ensure the sustainable use of contaminated soils. Our previous studies show that expression level of NAD+-dependent formate dehydrogenase, which is an enzyme known to related with environmental stress in plants, increases especially in roots of Erşan-92 cotton genotype, with the increasing heavy metal stress. This genotype, which is found to be tolerant up to 100 M Cu and shown to fight with heavy metal especially in roots, is envisaged as a candidate for cultivation in polluted soils. In this part of our study, in order to better clarify the response of Erşan-92 genotype to copper stress, it was grown for 3 weeks in ½ MS medium containing different concentrations of Cu and oxidative stress in plantlets were measured by Ascorbic acid and catalase analysis.

**Keywords:** Upland cotton, *Gossypium hirsutum,* Heavy metal stress, Catalase

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