



Effect of Chromium Rich Tannery Effluent on Soil Quality Vis-à-Vis Growth of Essential Oil Bearing Plant Indian Basil (*Ocimum basilicum*)

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ABSTRACT: Contamination of soil and water bodies with toxic heavy metals has often resulted from natural as well as human activities. Conventional technologies like physical and chemical treatments for the decontamination of heavy metals polluted soil require a high capital inputs. Use of aromatic plants for the phytoextraction of heavy metals polluted land is a sustainable, aesthetic and environmental friendly technique. Tannery effluent is available in huge amounts and is hazardous in nature. It is need to reduce the toxicity of the tannery effluent in a sustainable manner. The aim of this study was to assess the phytoextraction potential of aromatic plant (*Ocimum basilicum*) in hazardous metals polluted soils especially tannery effluent and its impact on soil properties. The essential oil of aromatic plants is being used in soaps, detergents, insect repellents, cosmetic, perfumes, and food processing industries. These plants are non-edible and are not being consumed directly by humans or animal like cereals, pulses, vegetables. The essential oil bearing aromatic plants biomass is free from the risk of heavy metals accumulation. In this study, *O. basilicum* an essential oil bearing plant was grown well in soils treated with different levels of tannery effluents. Application of tannery effluent (TE) reduced the overall growth and oil yield. The concentrations of hazardous metals have been decreases in post harvest soil of *O. basilicum*. Whereas soil enzymes activity was increased in post harvest soil. The present study showed that the *O. basilicum* can have ability to mitigate the metal toxicity form contaminated soils. Thus aromatic plants would be a suitable candidates for phytoremediation and also environmentally sound, eco-friendly and high valued crop. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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