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Removal Efficiency of Aloe vera (*Aloe barbadensis* Miller) and Basil (*Ocimum basilicum*) for Heavy Metals from Polluted Soil by Phytoremediation

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Abstract

Toxic heavy metals released from industrial effluents enter municipal waste water and reach ecosystems where they cause severe problems for all living beings. It is necessary to remove these heavy metals from the waste water. The efficient and cheap method of removing metals from the soil and water is Phytoremediation in which plants are used to remove toxic heavy metals that resist high concentration of these metals. In this study, the composite sample of industrial waste water was collected from the Hudhara drain, Lahore and fed to Aloe vera (*Aloe barbadensis* Miller) and Basil (*Ocimum basilicum*) in different treatments with distilled water. Pre-cultivation analysis of soil and water and post-cultivation analysis of soil was done for parameters; EC, pH, Na, Cl, CO³⁻, HCO³⁻, K, Mg, P, OM and heavy metals. The parts (roots, stem, and leaves) of both plants were analyzed for heavy metals after digestion with the help of AAS (Hitachi Z 8230). It is concluded from the results that both the plants have ability to hyper-accumulate different heavy metals in different concentrations.

Keywords: Industrial wastewater, Heavy metals, Basil, Aloe Vera, Phytoremediation.