

Phytoremediation of Chromium in Tannery Wastewater Polluted Lands

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Abstract: Phytoremediation is the use of plants to remove organic/inorganic contaminants from the soil. The widely used 'chrome tanning' process has contributed to Cr^{3+} and Cr^{6+} levels in soil where tannery effluents have been discharged. While, several high exhaust chrome tanning systems and end-of-pipe treatment and recycling are followed in tanneries to meet the requirements of wastewater norms and standards, the chromium levels in the lands polluted with chromium in various regions of the tannery clusters calls for suitable approach. In this study, plants that have chromium absorption capacity were tested for their ability to accumulate chromium, of which *Brassica juncea* and *Glycine max merr* demonstrated hyper accumulating capability. Further, the use of chelating agents enhanced the chromium mobility thereby increasing chromium uptake by phytoremediation. The bio-waste generated from these plants has been reused for the preparation of basic chrome tanning agent. Hence, we present phytoremediation as a near-zero approach that is inexpensive and eco friendly in-situ method for chromium removal from tannery wastewater polluted lands.

Key words: phytoremediation; chromium; tannery wastewater