

Bioreduction of chromium by the bacterial isolate from tannery effluent treatment plant

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Tanneries are the oldest industries started to promote cottage business in India. Only after several years it was realized that the effluent had adverse effect on the environment. Many initiative steps were taken to treat the effluent in Common Effluent Treatment Plants (CETPs). CETPs discharge treated effluent with organics and chromium toxicant higher than the statutory limit for discharge into the surface water bodies. This study aims to remediate the contaminated environment by biological means with the indigenous bacterial population from the tannery effluent treatment plant by reduction of hexavalent chromium to trivalent form. The bacterial strains isolated from different stages of the treatment plant were characterized based on the morphological and biochemical properties. The chromium resistance and reduction potential of the isolates were done to identify the efficient chromium reducer. *Bacillus* sp. tolerated up to 2000 µg/ml and reduced hexavalent chromium to trivalent form by 77.4 %. This strain can be used to remediate the chromium contaminated environment. Further molecular identification and approaches for strain improvement can enhance the reduction potential of the strain effectively.

Key words : Tanneries, CETPs, Hexavalent chromium, Strain improvement

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