

Application of phycoremediation technology in the treatment of wastewater from a leather-processing chemical manufacturing facility

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Abstract

Phycoremediation is the use of algae for the removal or biotransformation of pollutants from wastewater. Employing this technology in the treatment of industrial effluents presents an alternative to the current practice of using conventional methods, including physical and chemical methods. In the present study, the effluent from a leather-processing chemical manufacturing facility, situated at Ranipet, Tamil Nadu, India, was treated using the microalga, *Chlorella vulgaris*, which was isolated from the effluent itself. The objective of this study was to treat the effluent as well as ETP (effluent treatment plant) solid waste by phycoremediation (pilot-scale field study as well as laboratory study) and to analyse the physico-chemical parameters before and after treatment. The results obtained showed that *Chlorella vulgaris* exhibited appreciable nutrient scavenging properties under both laboratory and field conditions, although phycoremediation carried out in sunlight (field study) gave better results. Moreover, the growth of *Chlorella vulgaris* was faster under field conditions.

Keywords: Phycoremediation, microalgae, *Chlorella vulgaris*, effluent, ETP solid