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ENHANCED TANNERY WASTEWATER TREATMENT AND ELECTRICITY GENERATION IN MICROBIAL FUEL CELL BY BACTERIAL STRAINS ISOLATED FROM TANNERY WASTE

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Abstract

Toxic chemical nature of tannery wastewater makes it difficult to be treated by routine biological treatment processes. Microbes, already present in tannery wastewater can adapt to these conditions and degrade the organics in tannery wastewater. In the present contribution, three bacterial electrogenic strains, tolerant to tannery environment, were isolated from soil contaminated with tannery waste and named as *BS1*, *BS2*, and *BS3*. Tannery wastewater was treated with these pure and mixed consortia of three bacterial strains in different microbial fuel cells. Comparative analysis was made by treating the tannery wastewater with foreign microbial consortia (activated sludge inoculum) and with plain wastewater containing only natural habitat microbes, already present in wastewater. Mixed consortia of electrogenic strains gave best results. Up to 10.38mA current and 94.3 per cent of Chemical Oxygen Demand (COD) removal was obtained during 30 days of operation.

Key words: bioelectricity, COD, Microbial fuel cells, microorganisms, tannery wastewater

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