

Performance of Carbon Cloth Electrode in Mediator less Microbial Cell Applications using mixed Sewage Culture

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ABSTRACT

A mediator less two chambered microbial fuel cell (MFC) setup has been prepared using carbon cloth as anode and cathode. Mixed sewage culture was used as inoculum in anodic compartment for the treatment of waste water generated from different industries of Gwalior region i.e. sewage waste water, food industry waste water, oil mil waste water, pharmaceutical company waste water and waste water generated from a hostel mess. All the waste water samples were respectively monitored for generation of energy in the form of electricity as well as for chemical oxygen demand (COD) removal efficiency. All waste water samples generate electricity out of which best results are observed for Sewage waste waster which shoes 91% COD removal efficiency while producing 1.42 mA current and 1168.5 mW Power at 7th day of inoculation. The electrochemical activity and stability of carbon cloth (CC) anode is evaluated in the light of bio-film formation, bio-fouling and biocompatibility testing. The results obtained, suggests good promises and feasibility of carbon cloth anode and our developed MFC setup for the generation of electricity while treating waste water.

Keywords: *Microbial Fuel Cells, Mixed sewage culture, Carbon Cloth electrode*