

Microbial Fuel Cells in Waste Water Treatment and Electricity Generation

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Abstract : Microbial fuel cell (MFC) is the advancement of science that aims at utilizing the oxidizing potential of bacteria for wastewater treatment and production of bio-hydrogen and bio-electricity. Salt-bridge is the economic alternative to highly priced proton-exchange membrane in the construction of a microbial fuel cell. This paper studies the electricity generating capacity of E.coli and Clostridium sporogenes in microbial fuel cells (MFCs). Unlike most of MFC research, this targets the long term goals of renewable energy production and wastewater treatment. In present study the feasibility and potential of bioelectricity production from different wastewater was observed. Different wastewater was primarily treated which were confirmed by the COD tests which showed reduction of COD. We observe that the electricity production of MFCs decreases almost linearly after 120 hrs. The sewage wastewater containing Clostridium sporogenes showed bioelectricity production up to 188mV with COD removal of 60.52%. Sewage wastewater efficiently produces bioelectricity and this also helpful to reduce wastewater pollution load.

Keywords : microbial fuel cell, bioelectricity, wastewater, salt bridge, COD

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