

Electricity production with microbial fuel cell during wastewater treatment

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With increasing world population, the rate of using fossil fuels to produce energy has also increased rapidly. Because the use of fossil fuels releases greenhouse gases such as CO_2 , the development of environmentally friendly energy like Renewable bioenergy becomes important. A microbial fuel cell (MFC) is a bioreactor that converts chemical energy in the chemical bonds in organic compounds to electrical energy, by the catalytic reaction of microorganisms such as bacteria and algae. The concept of MFC for the first time was proposed by Potter in 1910, much research has occurred on MFC since 1980s, after it was figured out that cell potential and the power density could be increased rapidly by using the electron mediators. But none of them have shown properties that are comparable with other fuel cells (H_2/O_2 or $\text{CH}_3\text{OH}/\text{O}_2$). The electricity can be produced from different sources which contain acetate, lactate, and glucose. Food processing wastewater contains a multitude of organic compounds that could be used to feed the MFCs. The target in this study is optimizing the production of electricity from food processing waste water.

Biography

Pedram Mohrdar Ghaemmaghami is working on his Ph.D., at Chemical Engineering Department of New Mexico State University. He got his master in Material Science Engineering from New Mexico Tech and his bachelor in Material Science Engineering from University of Tehran-Iran.

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