

Title : Microbial fuel cell for wastewater treatment

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ABSTRACT

Microbial fuel cells are a technology that utilizes microorganisms to treat wastewater while simultaneously generating electrical energy. This process uses microorganisms as a medium to convert organic matter in wastewater into electrical energy. This project focuses on studying the feasibility and approaches for applying this technology in wastewater treatment systems, utilizing the oxidation reactions of the bacterium *Priestia aryabhatai* and to compare the electron acceptor systems at the anode side of the cell between oxygenation and the use of potassium permanganate solution, along with the measurement of related parameters such as pH, concentration of chlorine, nitrite and ammonium including BOD in wastewater before and after treatment. Additionally, the voltage and current flowing through resistors of various sizes were measured, and the power output was calculated daily throughout the 6-day treatment period. The preliminary results indicated that using potassium permanganate as the electron acceptor produced higher power output and results in an increased concentration of ammonium after treatment.

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