

ABSTRACT

Microbial Fuel Cell (MFC) is a technology that can convert chemical energy into electrical energy with the help of microorganisms. The bacteria will produce electrons through the substrate which will then be transferred to the anode and will flow to the cathode. In this study, the substrate used was paddy field mud and will papaya waste. The MFC system to be used is a dual chamber with a size of each chamber 5 cm x 5 cm x 10 cm. The two chambers will be connected to a salt bridge containing a stove wick that has been boiled using salt solution (NaCl). The electrodes used in this study were zinc (Zn) and copper (Cu) plates with a size of 5 x 2 cm and a thickness of 0,2 mm. In this study, the variations used were room temperature (22°C-26°C), 30°C, 33°C and 37°C. Microcontrollers, temperature sensors, relays and heaters are used to keep the temperature at the set-point. At the anode there is a substrate of a mixture of mud with papaya waste (1:2), at the cathode there is distilled water. In this study, the results of the highest voltage at 30°C is 0,43 V and the highest current at 33°C is 0,473 V.

Keywords : Microbial Fuel Cell, Reactors, Waste