

ABSTRACT

Microbial fuel cell (MFC) can be used as an alternative energy source that is environmentally friendly and sustainable. MFC can convert chemical energy into electrical energy through catalytic reactions with the help of microorganisms. The waste used in this research is the result of inlet waste water treatment and outlet. This research has purpose to know the influence of operation time, electrode diameter and reactor volume to MFC performance. The reactor is designed based on the working principle of an electrochemical cell reactor in which there are two compartments ie anode and cathode compartments. Both compartments are separated by salt bridges and in each compartment are given electrodes. Then do the preparation of substrate, and electrolysis tool. The anode compartment will be filled with inlet and outlet wastewater substrates from the Wastewater Treatment Plant in Cikoneng. The selection of this waste water as a substrate because there are many biocatalisator which is an important element in this system. In the experiments, the maximum current strength produced by this MFC system is 0.9201 mA with an inlet wastewater substrate with Zn / Cu electrodes at first measurement, and 0.9182 mA in the second measurement with Zn / Cu electrodes and water substrate waste inlet. Copper and zinc as electrodes, capable of converting the substrate into electrical energy with values between 1.5087 mJ to 155,3877 mJ. The maximum power value that can be generated from the MFC system for two measurements reaches 1.2555 mW using Cu and Zn electrode plates.

Keywords: Microbial Fuel Cell, waste water, electrode, strong current, voltage, electrical energy, maximum power.