

## ABSTRACT

The need for energy in the world will increase by the time, we cannot just rely on fossil energy because its existence will run out in the near future. The use of energy from biomass is the solution. Microbial Fuel Cell (MFC) is one of the solutions to biomass energy utilization. In this study, the design of the MFC aim to produce electricity is more constant. Semi-continuous system becomes a solution for electricity that is relatively constant compared with using a batch-substrate system. The construction of MFC uses a double chamber system consisting of a cathode compartment with Cu electrodes and anode compartment using Zn electrodes and substrate prepared by a fish pond sediment and spoiled rice. In building the system, semi-continuous MFC's can be approved using a dispenser-like container to facilitate substrate entering into the system. After the reactor is made, the voltage can be read by the data logger or using a multimeter. The result of a semi-continuous MFC reactor process is a graph of voltage output compared to the time spent stable. the results of the semi-continuous MFC reactor is a voltage output graph compared to a time that is close to stable where the value of the variance in the reactor with the addition of 75 ml every three days has the closest value to zero which means the most stable. The variance value at the most stable reactor has a variance value of 0,00159 with average of voltage is 0,648V.

Keywords: Microbial Fuel Cells, semi-continuous, fish pond, spoiled rice