ABSTRACT

Energy needs in Indonesia will increase in line with population growth, the economy and technological development. Biomass energy has a very abundant availability in the future. This energy comes from organisms obtained from the surrounding natural environment from organic materials that are environmental friendly. Microbial Fuel Cell (MFC) called as Micro Tunam Cell is an potential alternative energy to be developed, MFC is a bio-electrochemical that utilizes organic waste as an energy source. The purpose of this study is to determine the effect of fishpool mud sediment substrate and waste in the form of rice waste on the current, voltage and power density generated by the MFC Single Chamber Sediment system, by varying the substrate composition in each reactor where Reactor I is (800mL mud) , Reactor II of (400 mL of mud and 400 mL of rice waste), Reactor III of (600 mL of mud and 200 mL of rice waste), Reactor IV (200 mL of mud and 600 mL of rice waste), Reaktor V of (800 mL rice), and Reactor VI of (800 mL rice waste). The results of measurement for 14 days can be concluded that the fish pond mud substrate in Reactor I produces higher electrical energy production with a voltage value of 795,17 mV, current density of 36,17 mA/m^2, and a power density of 28,76 mW/m2 on the 14th day.

***Keywords** : Microbial Fuel Cell, substrate, electricity, fishpool mud, rice waste.*