

ABSTRACT

Electrical energy is an energy with the highest demand and will continue to increase every year. Currently, most of electrical energy is still obtained from fossil energy which will cause a problem because the increasing demand of electricity will have an impact on increasing the use of fossil energy. The increasing electricity demand will lead to availability of fossil energy problem since fossil is not a renewable energy, it takes decades to be produced before is used on electricity producing. In this experiment, the Sediment Microbial Fuel Cell (SMFC) energy conversion technology was used as a solution in obtaining renewable electrical energy and of course more environmentally friendly. SMFC is an energy conversion technology that utilizes a substrate in the form of organic waste and sediment in the form of sludge to produce electrical energy. In this experiment, the substrate used was potato skin waste and field rice mud as sediment. The number of reactors used is 8 units, where each reactor varies the volume of the substrate which are potato skin waste and rice field mud. The total substrate volume on each reactor is 800mL. Potato skin waste which is used is liquid by blended it with water and then filtering it. Voltage and current measurements were carried out for 15 days with data collection every 2 hours for 12 hours per day. In this experiment, the most stable production of voltage and current was obtained at Reactor 5 with ratio volume of the sludge and waste potato skins are 600mL and 200mL respectively. So that in this study, Reactor 5 has the most potential to produce electric power.

Keyword : *Microbial fuel cell, single chamber SMFC, potato peels waste, field rice mud. .*