

ABSTRACT

The use of energy in Indonesia continues to increase over time, considering the current energy sources are estimated to be running out. Excessive use, of course, will encourage energy to run out faster than expected. Therefore, it is necessary to develop alternative energy as renewable energy. Microbial Fuel Cell (MFC) is one of the renewable innovations. The working principle of this method is to convert chemical energy into electrical energy by utilizing bacteria to produce electrical energy from organic materials. In a dual-chamber MFC that uses clay as PEM the clay composition will affect the reactor performance. The use of PEM has also been carried out in previous studies, only in previous studies using a salt bridge made of a stove wick which was then twisted and soaked in a salt solution (NaCl). Based on the results of previous studies, it is shown that the maximum power that can be generated is 0.13 mW and the maximum energy is 1909.40 mJ in the reactor with variations in the composition of 300 mL rice mud and 100 mL banana peel with a length of PEM is 10 cm. Each compartment can hold up to 500 mL and is separated by a ceramic made of clay as a Proton Exchange Membrane (PEM). The electrodes used are zinc at the anode and copper at the cathode with a surface area of 10 cm² each Rice field mud used as a source of bacteria is more than the number of banana peels in the anode chamber.

Keywords : *Microbial Fuel Cell*, Banana peel, Field Mud, Clay.