

ABSTRACT

Microbial electrolysis cell (MEC) is an alternative fuel solution. MEC has the most important factors in producing hydrogen gas, that is voltage and substrate. In this research, an MEC system will be created which aims to obtain hydrogen gas through variations of rice waste and voltage. Voltage variations ranging from 0.1 volts – 1,5 volts and variations in the concentration of rice are 71,14 mg/ml, 47,42 mg/ml, dan 23,714 mg/ml. The advantage of MEC in this experiment is that MEC is considered cheaper because it is based on organic waste which is easy to find and the reactor used is smaller. In this experiment, the substrate used is rice waste mixed with mud. In this MEC there are two chambers, that is anode and cathode chambers, and input voltage. The hydrogen gas produced in the cathode chamber will be measured by a hydrogen gas detector. Experimental results showed the highest hydrogen gas was 746 PPM at a voltage of 0.8 volts with a rice concentration of 71,14 mg/ml. Based on the experimental results, it is stated that the MEC system using rice as a substrate is proven to produce hydrogen gas.

Keywords: Microbial Electrolysis Cell, Substrate, Voltage, Hydrogen Gas Production