ABSTRACT

Microbial Tunam Cells (STM) is a renewable energy that can produce electricity with bio-electrochemical methods, which convert chemical energy into electrical energy by utilizing the natural metabolism of microbes. The reactor at this STM uses a single chamber scheme having one chamber that contains a substrate and an electrolyte solution. The anode compartment is in an open environment with four parts equipped with electrode plates which are distributed into four parts with each dimension 5 cm × 2 cm and surrounds the cathode compartment, while the cathode compartment is tube-shaped which has a diameter of 10 cm and height of 15 cm. The two compartments are connected by a salt bridge. Many electrodes are distributed and the distance of the electrodes in the STM system affects the production of electrical energy produced. The highest average stress was 196.9 mV in field mud A and 192.4 mV in field mud B on the 3rd day of measurement at L1R3. That was caused by the difference in mud and the mud harvest period. But on the fifth day has a graph that tends to be stationary phase. In this measurement, there is no addition of distilled water because it is very influential on increasing the production of electrical energy which results in reduced organic matter and the source of existing bacteria.

Keywords: *Microbial Tunam Cells, Distributed Electrodes, Current and Voltage Characteristics.*