

## **ABSTRACT**

*One renewable energy source that is currently developing is Microbial Fuel Cell (MFC) technology. MFC utilizes bacterial metabolism in the substrate to produce electricity. In this study, the substrate used was a mixture of paddy mud and sugarcane juice. The MFC system used for this study uses a dual chamber type reactor of the same size for each chamber, which is 5 cm x 5 cm x 10 cm. The two chambers are connected by a salt bridge made from the stove wick that has been soaked in a solution of NaCl with a concentration of 1 Molar. The electrodes used in this system are made of zinc (Zn) and copper (Cu). In this study, temperature variations were 26 °C, 28 °C, 30 °C, 32 °C, 34 °C, 36 °C. This study shows that the MFC Dual Chamber with mixed substrates of mud of rice field and cane water with temperature variations generates a different output power at each temperature variant. MFC with temperature variant of 30 °C generates the highest output power compared to other temperature variants, equal to 0.408 mW, also generates an average output power 15% higher compared to MFC at room temperature. Meanwhile, MFC with temperature variant of 36 °C generates the lowest output power compared to other temperature variants, equal to 0.077 mW.*

**Key Word :** *Microbial Fuel Cell, Temperature Control, Wetland Mud, Sugar Cane, Renewable Energy.*