

ABSTRACT

Microbial Fuel Cell (MFC) is a technology that could convert biochemical processes into electrical energy through anaerobic microorganism catalyst activity. This study is conducted to know the performance of MFC system on fish pond sediment in Telkom University area and fish pond sediment substrate which has added waste rice with 1:1 volume ratio. The MFC reactor construction used is a dual chamber system separated by salt bridges (NaCl 1M) and equipped with graphite electrodes derived from the used batteries in each compartment. From the results of measurements conducted for 30 days, it can be concluded that the MFC system with the Telkom University fish pond sediment substrate is able to produce electricity with a voltage peak of 0.712 V, current density of $102.74 \times 10^{-3} \text{ A. m}^{-2}$ and power density of $73.15 \times 10^{-3} \text{ W. m}^{-2}$ on the 19th day of the study for sediment samples from the fish pond outlets. While in the fish pond sediment that has been added to the waste rice with a ratio of 1: 1, it is able to produce higher electricity with a voltage peak of 0.955 V, current density of $164.38 \times 10^{-3} \text{ A. m}^{-2}$ and power density of $156.99 \times 10^{-3} \text{ W. m}^{-2}$ on the 20th day of the study.

Keywords: Microbial Fuel Cell, fish pond sediment, waste rice.