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EFFECT OF ORGANIC LOADING RATE ON POWER PRODUCTION POTENTIAL OF DUAL CHAMBERED MICROBIAL FUEL CELL TREATING INDUSTRIAL WASTEWATER

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ABSTRACT: A major challenge for the 21st century will be the efficient use of all the available resources to minimize wastage and effective methods for recycling and reuse of those resources. Lack of fresh water is becoming one of the largest and most universal of the resource problems that we face in our day today life. This leads us to consider the options for turning wastewater into useful resources, with recovery of the water for reuse. Therefore, wastewater has become an essential component in the water resources and environmental management framework. The amount of increase in manufacturing of automobiles, metal processing, food processing, textiles, leather and other various products sectors has led to requirement of huge need of fresh water for process and process support. In particular, the physico-chemical characteristics of the industrial wastewater such as pH, biochemical oxygen demand (BOD), chemical oxygen demand (COD), soluble chemical oxygen demand (SCOD), total chemical oxygen demand (TCOD), total suspended solids (TSS) is tested in the college laboratory itself and based on the output characteristics of sample, the amount of power generation from the sample to be determined. The MFC is fabricated and wastewater is fed through the inlet port of the MFC. The MFC will be operated at different organic loading rate (OLR) and the maximum power density, corresponding columbic efficiency achieving rate will be determined while treating the industrial wastewater. The treated wastewater characteristics will be monitored and the level of improvement of quality from raw effluent to treated effluent will be determined. It will be made sure that the treated wastewater characteristics shall meet the effluent discharge quality standards.

Keywords: *Microbial Fuel Cell (MFC), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Soluble Chemical Oxygen Demand (SCOD*)