New Configuration of Microbial Fuel cell for waste water treatment and green electricity generation

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Microbial fuel cell (MFC) is a suitable device for biological wastewater treatment that can use different types of wastewater and simultaneously generate electricity in addition to pollutants removal. One of the factors affecting system performance is MFC structure and configuration. Air cathode MFCs have recently received much attentions due to their unlimited access to oxygen and low space between electrodes. In this study, the newest single chamber air cathode MFC was fabricated using a novel design without the presence of a proton exchange membrane (PEM) and its performance was studied in the field of bioelectricity production and dairy wastewater treatment under two batch and continuous operating conditions. After numerous studies, it was decided to fabricate electrodes based on stainless steel mesh (SSM), which were modified using cost effective carbon materials.