

ADDITION OF CO-SUBSTRATE AS A STRATEGY TO IMPROVE THE PERFORMANCE OF MICROBIAL FUEL CELLS TREATED WITH MICROALGAE CHLORELLA VULGARIS BIOMASS

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Abstract

In the present study, the effect of adding glucose as an auxiliary substrate on the performance of two-compartment microbial fuel cells (MFCs) during the conversion of dry biomass of *Chlorella vulgaris* (CA) to bioelectricity. addition of glucose as an auxiliary substrate at the MFC anode effectively increased the maximum power density by 22.08% and 21.71% compared to the dried algal biomass-treated MFC (MFC-CA) and the glucose-treated MFC (MFC-G), respectively. The maximum power densities in MFC-CA and MFC-G were 19.17 mW/m² and 19.11 mW/m², respectively. There was no significant difference in maximum power density between MFC-CA and MFC-G. Therefore, our study showed that the presence of an auxiliary substrate can have a significant effect on MFC performance. The present study also demonstrated that *Chlorella vulgaris* dry biomass can be used as a green substrate for bioelectricity generation in MFC anodes.