

Silver Grass-derived Porous Carbon Electrodes for Enhanced Energy Generation and Heavy Metal Removal in Microbial Fuel Cell

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Microbial fuel cells (MFC) are bioelectrochemical systems designed to convert the chemical energy contained in organic matter into electrical energy utilizing catalytic (metabolic) activity of microorganisms. The fabrication of novel carbon materials as anodes to generate power without the utilization of noble metals is a hot-spot in the research of MFC. The silver grass is considered as a safer, cheaper and greener way of utilizing them as a source of preparing carbon which could be used as an anode material in energy storage and energy conversion technologies. In the present work, silver grass (*Miscanthus sinensis*) has been used as an anode material for achieving higher power density and to remove heavy metals (Cr, Co and Cu) from contaminated wastewater through microbial fuel cell. The biomass carbon powder obtained from silver grass exhibited high specific area (2700 m² g⁻¹) with excellent porous structure which facilitates the growth of bacteria (*E. Coli*) during the MFC operation and resulted in delivering high power output with the decontamination of contaminated waste water by removing the heavy metals.