عنوان مقاله:

Ternary nanotube α-MnO2/GO/AC as an Excellent Alternative Composite Modifier for Cathode Electrode of Microbial Fuel cell

محل انتشار:

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خلاصه مقاله:

Microbial fuel cells (MFCs) are known as innovative alternatives to non-renewable energy by providing significant opportunities to convert chemical energy of organic or inorganic matters into electricity. Low power density is one of their most challenging drawbacks, which can be improved by using various types of catalytic materials. Proving previous sentence, we were able to apply Graphene oxide (GO) and nanotube manganese dioxide (α-MnO2) as a cathode modifier. By constructing nano-composite with high catalytic activity mixed with simple and cost-effective activated carbon we could enhance our MFC s output power, which were 280-fold of the bare electrode. Also we have compared MFC s output by applying Ternary nanotube α-MnO2/GO/AC catalyst with 5, 10, 15 and 20 percent of GO. Consequently, the composite with 10% GO achieve 148.4 mW/m² maximum power which indicates the best performance among other amounts of GO.

کلمات کلیدی:

Ternary nanotube α-MnO2/GO/AC, cathode catalyst, oxygen reduction reaction, microbial fuel cells

لینک ثابت مقاله در پایگاه سیویلیکا: