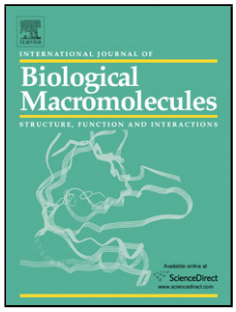

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Synthesis and characterization of a novel electron conducting biocomposite as biofuel cell anode

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Highlights

- Chemically synthesized conducting composite as electron transfer enhancer.
- Faster electron transfer using biocompatible redox mediator.
- Ppy-Ag-GO composite enhanced the surface area of the electrode for the effective immobilization of the enzyme.
- Appreciable current density of 5.7 $mAcm^{-2}$ attained by the fabricated Ppy-Ag-GO/Frt/GOx bioanode for biocatalytic glucose oxidation..

Abstract

This study is based on the construction of an enzymatic bioanode adopting the exclusively reported layer-by-layer (LBL) assembly of Ppy-Ag-GO/ferritin (Frt)/glucose oxidase (GOx). The glassy carbon (GC) electrode was immobilised with the conducting polypyrrole (Ppy)-silver nanoparticles (Ag)-graphene oxide (GO) based biocomposite as electron transfer elevator, horse spleen ferritin (Frt) protein as electron transfer mediator and glucose oxidase (GOx) enzyme in layer by layer configuration. The fabricated bioanode exhibited good electrochemical performance with a maximum current response of 5.7 $mAcm^{-2}$ accompanied with biocompatibility and