

Fabrication and characterization of glucose-oxidase-trehalase electrode based on nanomaterial-coated carbon paper

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Electrochemical analyses of GOx electrodes

The electrochemical behaviors of three electrodes, namely CP/GOx-Gel, CP-SWCNT/GOx-Gel, and CP-SWCNT-AuNP₁₀/GOx-Gel, were investigated using cyclic voltammetry. The electrochemical cell consisted of a three-electrode system with a working electrode, a counter electrode (Pt), and an Ag/AgCl reference electrode (LF-2, Innovative Instruments Inc., Tampa, FL, USA).

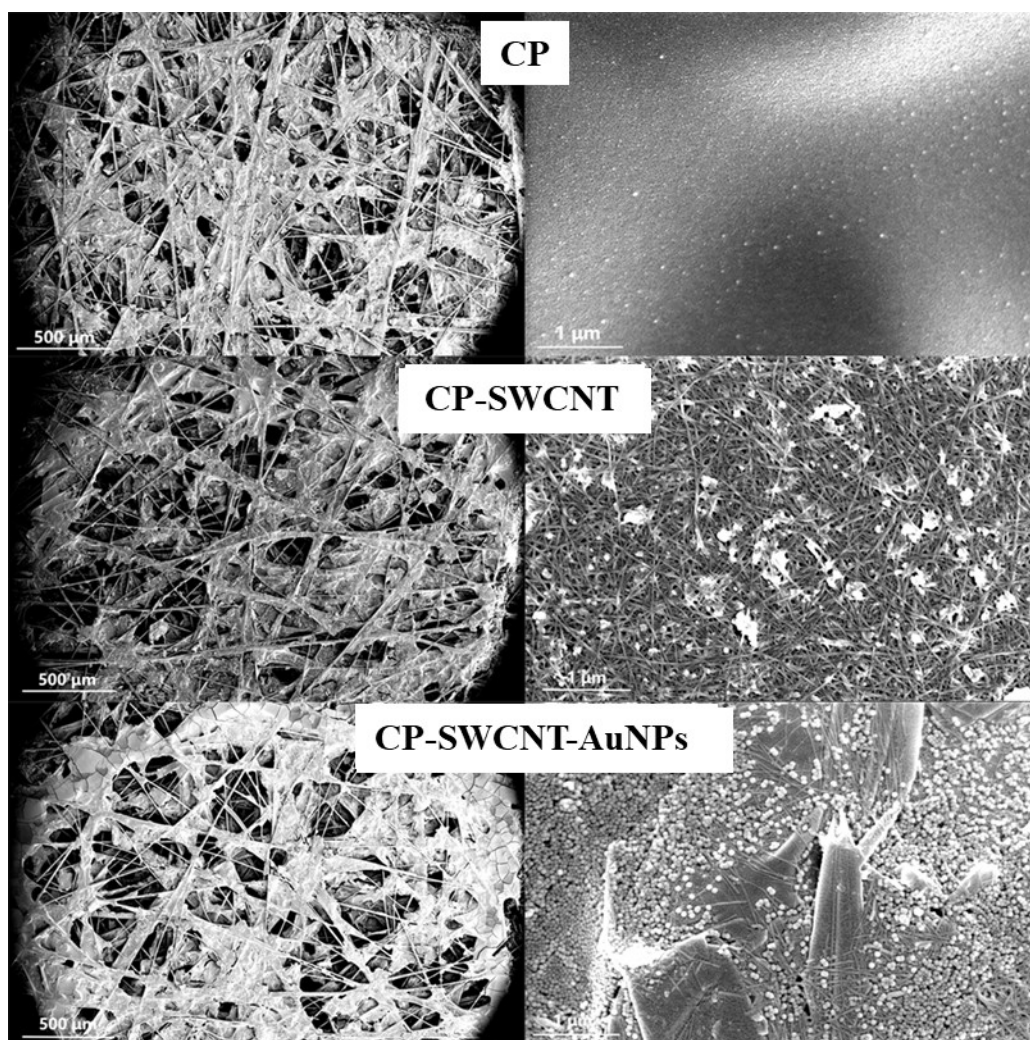


Fig. S1. SEM images of the CP, CP-SWCNT, and CP-SWCNT- AuNP₁₀.

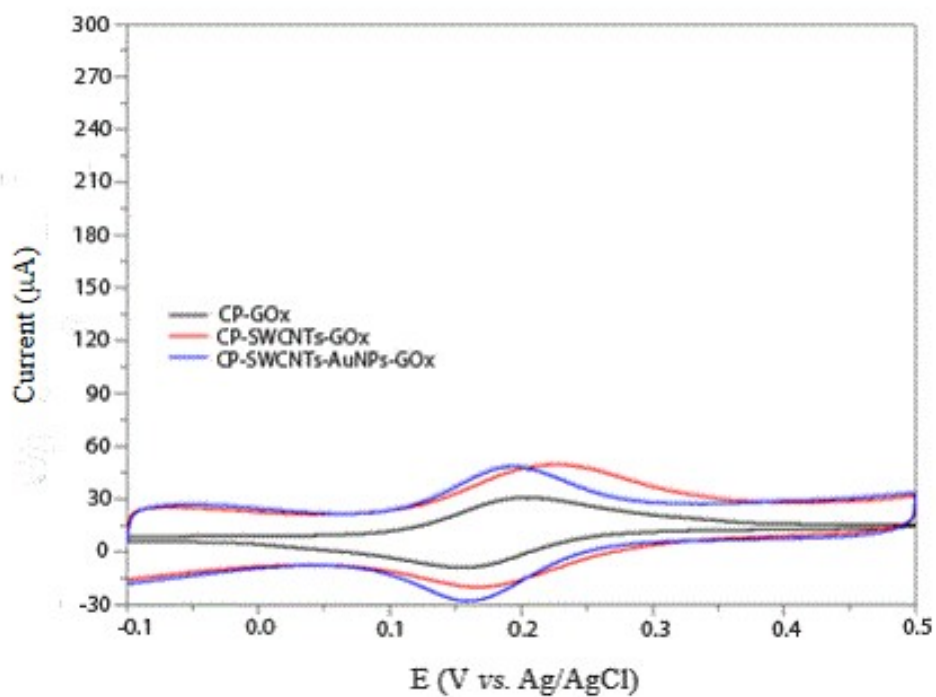


Fig. S2. Cyclic voltammograms of the CP/GOx-Gel, CP-SWCNT/GOx-Gel, and CP-SWCNT-AuNP₁₀/GOx-Gel electrodes in 10 mM PBS (pH = 7.0) containing 1 mM ferrocenemethanol.

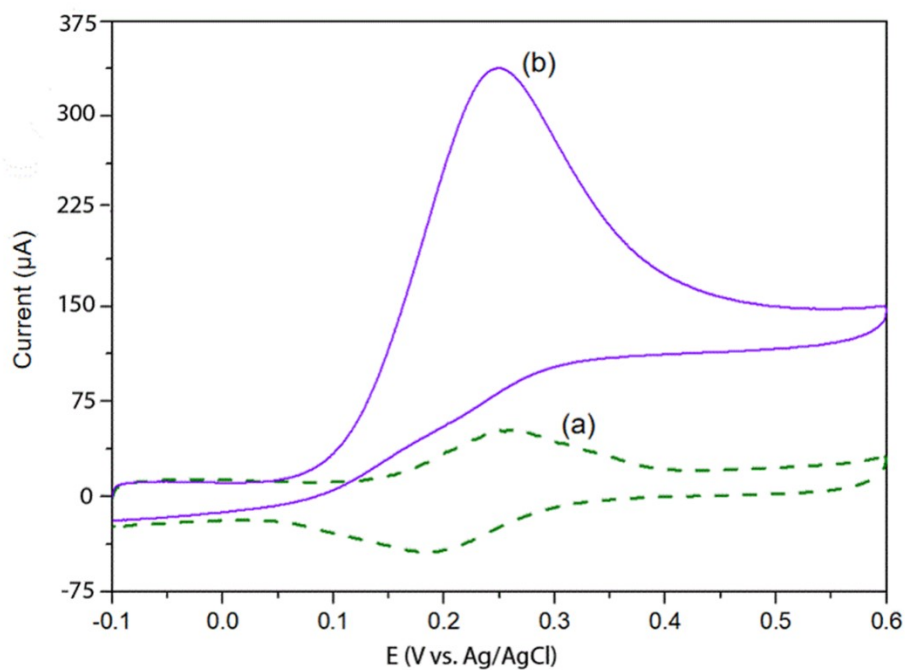


Fig. S3. Cyclic voltammograms of the CP-SWCNT-AuNP₁₀/GOx-Gel electrode in the (a) electrolyte and (b) TREH-digested electrolyte. The electrolyte was prepared by dissolving ferrocenemethanol (1 mM) and trehalose (30 mM) in 10 mM PBS (pH = 7.0). To digest trehalose, the electrolyte was supplemented with TREH (2.1 U) and incubated at 37 °C for 3 h. The TREH was then inactivated by boiling the electrolyte at 90 °C for 5 min and cooling.