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Synthesizing and Fabrication of Pani-(SnO_2, ZnO)/rGO by Sol-Gel Method to Develop a Biosensor Thin-Films on Top Glass Substrate

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Abstract : The fabricated PANI-(SnO_2, ZnO)/rGO nanocomposite thin films for the E. coli bacteria sensor were investigated. The nanocomposite thin films were prepared by the sol-gel method and deposited on the glass substrate using the spin-coating technique. The internal structure and surface morphology of the thin films have been analyzed by X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), and atomic force microscopy (AFM). The optical properties of the films were investigated by UV-Vis spectroscopy, Raman spectroscopy, and Fourier transform infrared spectroscopy (FTIR). The sensitivity performance was identified by measuring the changing conductivity before and after the incubation of E. coli bacteria using current-voltage (I-V) and cyclic voltammetry (C-V) measurements.

Keywords : PANI-(SnO_2, ZnO)/rGO, nanocomposite, bacteria sensor, thin films
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