

24th World Congress on

NANOMATERIALS AND NANOTECHNOLOGY

July 12-13, 2018 Bangkok, Thailand

Detection of H_2O_2 based on multi-porous SnO_2 nanofiber carbon nanotube nanocomposite with facilitated electron transfer of redox protein**A K M Kafi**

Universiti Malaysia Pahang, Malaysia

A novel H_2O_2 biosensor is fabricated using multi-porous SnO_2 nanofiber/carbon nanotubes (CNTs) composite as a matrix for the immobilization of redox protein onto glassy carbon electrode. The Multi-Porous Nanofiber (MPNFs) of SnO_2 is synthesized by electro-spinning technique from the tin precursor. This nanofiber shows high surface area and good electrical conductivity. The SnO_2 nanofiber/CNT composite increases the efficiency of biomolecule loading due to its high surface area. The morphology of the nanofiber has been evaluated by Scanning Electron Microscopy (SEM). A direct electron transfer between the protein's redox center and the glassy carbon electrode is established after fabrication of the electrode. The fabricated electrode shows excellent electro-catalytic reduction to H_2O_2 . The catalysis currents increases linearly to the H_2O_2 concentration in a wide range of 1.0×10^{-6} - 1.4×10^{-4} M and the lowest detection limit was 30 nM (S/N=3).

kafiakm@ump.edu.my

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