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Electrodeposited Silver Nanostructures: A Non-Enzymatic Sensor for Hydrogen Peroxide

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Abstract : Silver nanostructures have been successfully fabricated by using electrodeposition method onto indium-tin-oxide (ITO) substrate. Scanning electron microscopy (SEM), electrochemical impedance spectroscopy (EIS) and ultraviolet-visible spectroscopy (UV-Vis) techniques were employed for characterization of silver nanostructures. The results show nanostructures with different morphology and electrochemical properties can be obtained by various the deposition potentials and times. Electrochemical behavior of the nanostructures has been studied by using cyclic voltammetry. Silver nanostructures exhibits good electrocatalytic activity towards the reduction of H₂O₂. The presented electrode can be employed as sensing element for hydrogen peroxide.

Keywords : electrochemical sensor, electrodeposition, hydrogen peroxide, silver nanostructures
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