Enzyme-free glucose sensor based on Copper particles /polyaniline composite film

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Abstract. Modified polymer films with metal particles incorporated into the matrix by potentiostatic deposition are known as possible electrocatalysis applications. This work presents some results concerning the electrooxidation of glucose at modified polymer thin film electrodes of copper-polyaniline (Cu-PAni) prepared on an Indium tin oxide (ITO) substrate. The morphology analysis of the Cu-PAni composite films shows that copper particles were uniformly dispersed over the polymer surface. The response to glucose of this composite material was tested by cyclic voltammetry and chronoamperomertric method in 0.1 M NaOH solution. The results show good performances and indicated a sensitive oxidation peak current of glucose on the modified electrode.

Keywords: Electrochemical deposition, polyaniline, copper particles, Nonenzymatic sensor, Glucose.