Application of TiO₂/Fe₃O₄/MWCNTs Nanocomposite Conductive Mediator for Fabrication of Kojic Acid Sensor

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This research work focused on kojic acid determination using carbon-paste electrode (CPE) improved with TiO₂/Fe₃O₄/MWCNTs nanocomposite and ionic liquid (TiO₂/Fe₃O₄/MWCNTs/IL-CPE). Redox behavior of kojic acid as an antioxidant food additive was examined by different electrochemical techniques. The recording results confirmed TiO₂/Fe₃O₄/MWCNTs/IL-CPE could improve redox behavior of kojic acid in current and potential cases. The TiO₂/Fe₃O₄/MWCNTs/IL-CPE showed linear relation with kojic acid concentration in the range 0.5 μM - 300.0 μM with detection limit 0.2 μM using the DPV. The TiO₂/Fe₃O₄/MWCNTs/IL-CPE was used to determine kojic acid in real food samples.

Keywords: Kojic acid, Carbon amplified sensor, TiO₂/Fe₃O₄/MWCNTs nanocomposite, Ionic liquid

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