An Electroanalytical Determination of Sunset Yellow in Food Product by Amplified Nanostructure Carbon Paste Electrode as Sensor

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A new and sensitive food analytical sensor was fabricated using the amplification of paste electrode (CPE) by CdO-SWCNTs and 1-methyl-3-butylimidazolium bromide (MBIZLB), which was then used to determine Sunset yellow (SY) in aqueous solution. The CPE/MBIZLB/CdO-SWCNTs showed excellent catalytic activity for oxidation of SY and improved its current activity up to about 6.12 times. FESEM image of CdO-SWCNTs nanocomposite displayed decoration of CdO nanoparticles at the surface of carbon nanotubes with a diameter about 30 nm. On the other hand, square wave voltammograms of SY showed a linear dynamic range 0.0006-180 μ M with the detection limit of 0.3 nM using CPE/MBIZLB/CdO-SWCNTs as the working electrode. Finally, the CPE/MBIZLB/CdO-SWCNTs was used for the determination of SY in juices samples by applying standard addition method with recovery range of 98.88 to 101.84%.

Keyword: CdO-SWCNTs, Composite, sunset yellow, modified sensor

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