Development of a Molecularly Imprinted Electrochemical Sensor for Tert-Butylhydroquinone Recognition

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In this work, a new molecularly imprinted voltammetric sensor was fabricated based on a glassy carbon electrode (GCE) modified with reduced graphene oxide (rGO)-based silver nanoparticles (AgNPs) for the detection of tert-butylhydroquinone (TBHQ). X-ray diffraction (XRD) and X-ray photoelectron spectroscopy (XPS) techniques were used for the characterization of the proposed surfaces. The linearity range of the proposed method was determined to be 0.05-1.5 nM, and the limit of detection (LOD) was 1.48×10^{-11} M. The new voltammetric sensor exhibited remarkable recovery and selectivity for the detection of real specimens. The stability of the sensor was also investigated.

Keywords: Butylhydroquinone; Molecular imprinting; Graphene; Voltammetric sensor; Food samples

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