Application of Gold Nanoparticle and Three-Dimensional Graphene Based Electrode for Sensitive Voltammetric Analysis of Luteolin

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A nanocomposite composed of gold nanoparticle (Au) and three-dimensional graphene (3DGR) was electrodeposited on the surface of carbon ionic liquid electrode (CILE), which exhibited synergistic effects with improved electrochemical performance. Voltammetric behaviors of luteolin on Au/3DGR/CILE were evaluated with the electrochemical parameters calculated. At the selected conditions differential pulse voltammetric responses had good linear relationship with luteolin concentration from 5.0×10^{-8} to 5.0×10^{-5} mol L⁻¹ and the detection limit was 7.59×10^{-9} mol L⁻¹. The Duiwei soft capsules sample was successfully detected by the proposed method.

Keywords: Three-dimensional graphene, Gold nanoparticle, Luteolin, Carbon ionic liquid electrode, Electroanalysis

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