

عنوان مقاله:

Garniture of graphene oxide with NiO@polypyrrole core-shell nanoparticles for making a novel nanosensors for the determination of piceatannol in human and plant samples

محل انتشار:

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خلاصه مقاله:

For the first time in the world, we expanded an electrochemical nano sensor for determination of an anti-cancer drug piceatannol based on a new type of nanocomposite: graphene oxide nano sheets arrayed with core-shell NiO@polypyrrole nanoparticles (NiO@Ppy/GO) blended with nafion and sheded on the surface of glassy carbon electrode. The nanocomposite was specified by transmission electron microscopy (TEM), scanning electron microscopy (SEM), energy dispersive Xray spectroscopy (EDX), X-ray diffraction and Fourier transform infrared spectroscopy (FT-IR) techniques. The square wave voltammetry as a sensitive technique and cyclic voltammetry were selected for the determination of piceatannol in 0.1M phosphate buffer solution (pH 7.0). Several factors were measured such as pH value, scan rate and supporting electrolyte type for the quantification of piceatannol. Moreover, selectivity and repeatability measurements were also investigated. Under the optimized factors, linear range and limit of detection were calculated 0.01-10.0 μM and 0.003 μM , respectively. Relative standard deviation for 3.0 μM and 6.5 μM were obtained 3.25% and 1.83%, respectively. The offered nanosensors was practiced successfully for the quantification .analysis of piceatannol in grape skin essential oil and urine sample with good results

کلمات کلیدی:

Piceatannol determination, NiO@Ppy nanocompositem Cyclic and square wave voltammetry, GO nanosheets

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