

Highly selective and sensitive voltammetric sensor graphene modified glassy carbon electrode for quantification of receptor agonist rizatriptan

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An electrochemical sensor based on the electrocatalytic activity of functionalized graphene for selective and sensitive detection of rizatriptan is presented. The graphene modified glassy carbon electrode (GCE) based sensor was characterized by electrochemical impedance spectroscopy and X-ray diffraction (XRD). The electrochemical behaviors of rizatriptan on graphene modified GCEs were investigated by square-wave and cyclic voltammetry techniques. The results showed that the graphene modified electrode exhibited excellent electrocatalytic activity to rizatriptan. Such electrocatalytic activity is attributed to its unique physical and chemical properties e.g., subtle electronic characteristics, attractive π - π interaction and strong adsorptive capability. This electrochemical sensor shows an excellent performance for detecting the limit of detection (LOD) and limit of quantification (LOQ) of rizatriptan were found to be 36.52 and 121.73 $\mu\text{g/mL}$ respectively, and a satisfied recovery from 98.5 to 100.3%. The sensor shows great promise for simple, sensitive and quantitative detection and screening of rizatriptan. The structure of graphene was found to be crystalline which was confirmed from XRD.

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