Amperometric Determination of Acetaminophen (paracetamol) Using Graphene Oxide Modified Glassy Carbon Electrode

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doi: 10.20964/2018.08.01

Received: 16 March 2018 / Accepted: 12 May 2018 / Published: 5 July 2018

In this work, a simple, disposable electrochemical sensor based on graphene oxide (GO) modified glassy carbon electrode (GCE) was reported, which was used for the determination of pain reliever acetaminophen (AC). Scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FT-IR), Raman spectroscopy were utilized to characterize the graphene oxide. In addition, the GO/GCE displayed excellent electrocatalytic activity towards the electrochemical determination of AC. Under the optimized conditions, the sensing platform showed wide linear responses for AC from 0.1 to 430 μM with detection limits (S/N=3) of 21 nM. The proposed sensor displayed good selectivity, sensitivity, and stability. Furthermore, GO modified electrode was also applied to detect practical samples with satisfactory results.

Keywords: painkiller, acetaminophen, graphene oxide, modified electrode, electrochemical sensor,

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