Simultaneous Determination of m-Trihydroxybenzene and p-Nitrophenol at Glassy Carbon Electrode Modified with Graphene Oxide

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A modified electrode was fabricated by casting graphene oxide (GO) suspension onto the surface of active glassy carbon electrode (GCE), and it can significantly enhanced the oxidation peak currents of m-trihydroxybenzene (m-THB) and p-nitrophenol (p-NP). Based on this, a sensitive analytical method towards their simultaneous determination was established. Many influencing factors such as the type of electrolyte, acidity, scan rates and concentrations were explored. Under the optimal experimental conditions, the oxidation peak currents of m-THB and p-NP were linearly increased with their concentrations ranging from 9 to 100 μ M, with the detection limits both of 1 μ M. Comparing with other reported methods, this sensor showed wider linear range and lower detection limit. In addition, the proposed method was successfully used to analysis of real environmental water samples with satisfactory recoveries, which verified the practicability of the sensor.

Keywords: m-trihydroxybenzene, p-nitrophenol, graphene oxide, modified electrode

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