Preparation of Graphene-Multi-Walled Carbon Nanotube Composite for Quantitative Determination of 2-hydroxy-3-Methylantraquinone in *Hedyotis diffusa*

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In this study, an electrochemical sensor based on a novel composite of reduced graphene oxide (GO) and multi-walled carbon nanotube (CNT) was developed for the detection of 2-hydroxy-3-methylantraquinone. First, GO was employed to disperse CNT as a dispersant. Then GO was reduced electrochemically into RGO after being deposited on the surface of ITO. Thus, the designed electrochemical sensor based on RGO/CNT/ITO for detecting 2-hydroxy-3-methylantraquinone was first reported. Cyclic voltammetry and electrochemical impedance spectroscopy (EIS) were employed to analyse the sensor. The results indicated that the sensor exhibited an electrocatalytic activity for the reduction of 2-hydroxy-3-methylantraquinone. In particular, the electrochemical reduction of 2-hydroxy-3-methylantraquinone was remarkably enhanced by the RGO/CNT composite. Besides, the sensor was efficient in determining 2-hydroxy-3-methylantraquinone in *Hedyotis diffusa*, where the sensor exhibited a linear response range from 2 to 600 μM .

Keywords: Graphene; Carbon nanotube; Sensor; Electrocatalysis; *Hedyotis diffusa*

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