Direct Electrochemistry of Eugenol at a Glassy Carbon Electrode Modified with Electrochemically Reduced Graphene Oxide

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An electrochemically reduced graphene oxide modified glassy carbon electrode (ERGO/GCE) was synthesized by direct electrochemical reduction of graphite oxide on a glassy carbon electrode (GCE). The prepared ERGO/GCE shows higher sensitivity to eugenol than the bare GCE due to the large surface area and excellent conductivity, indicating that a direct electrochemical behaviour can be significantly enhanced through electrochemically reduced graphene oxide (ERGO) surface modification. The ERGO/GCE displays a fast response time of less than 5 s and has a detection limit of 5×10^{-7} M, covering a linear range from 5×10^{-6} M to 1×10^{-4} M. As a result, ERGO nanomaterials have potential applications in sensitive eugenol sensors.

Keywords: Eugenol; ERGO; Direct electrochemistry; Sensor

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