Electrochemical Rutin Sensor Based on Graphene Oxide and Functionalized Multiwall Carbon Nanotubes@nafion_{0.1}% Hybrid Nanocomposite modified glassy carbon electrode

Praveen Kumar G¹, Raja Nehru¹, Shen-Ming Chen^{1*}, Bandar Mohsen Almunqedhi², Tse-Wei Chen^{1,3}, Jun-Yu Wang¹, Ming-Chin Yu^{4,*}, Noura M. Darwish⁵

¹ Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei 10608, Taiwan.

² Department of Botany and Microbiology, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia.

³ Research and Development Center for Smart Textile Technology, National Taipei University of Technology, Taipei 106, Taiwan, ROC.

⁴ Department of Surgery, Chang Gung Memorial Hospital, Taoyuan 333, Taiwan (R.O.C)

⁵ Biochemistry Department, Ain Shams University, Dokki, Cairo 12311, Egypt.

*E-mail: smchen78@ms15.hinet.net (Shen-Ming Chen), mingchin2000@gmail.com (Ming-Chin Yu)

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A highly sensitive electrode based on graphene oxide and functionalized multiwall carbon nanotube hybrid composite as coated on glassy carbon electrode (GCE) for the electrochemical rutin sensor. The as-prepared GO/*f*-MWCNTs@nafion composite was characterized by promising analysis such as field emission scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDX), Fourier transform infrared spectroscopy (FT-IR), X-ray photoelectron spectroscopy (XPS), UV-Vis Diffusive reflectance spectroscopy (UV-DRS). The GO/*f*-MWCNTs@nafion/GCE hybrid nanocomposite revealed substantial electrocatalytic activity toward the rutin sensor. The GO/*f*-MWCNTs@nafion/GCE electrode manifested voltammetric response over the concentration ranging of 0.02 to 39.69 μ M with a limit of detection (LOD) 0.004 nM, respectively. This analytical values suppressed the previously existing method for the electrochemical sensing of rutin. Additionally, the modified electrode proposed excellent stability, repeatability, and sensitivity.

Keywords: Flavonoid, Antioxidant, GO, *f*-MWCNTs, Hummer's method, and stability.

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