Development of a Nafion-graphene Nanocomposite for Sensitive Electrochemical Determination of Cadmium(II) Ions

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In this study, an extremely sensitive electrochemical platform was prepared for Cd²⁺ detection using a glassy carbon electrode (GCE) decorated with a Nafion-graphene (Nafion-G) nanohybrid. This strategy was based on accumulation of the metal ions on Nafion-G. Raman spectroscopy, XRD, and FTIR were used for the characterization of the prepared Nafion-G. The behaviour of the Nafion-G was optimized using operational parameters and surface modification. In addition, the sensor we developed was successfully used in the detection of Cd²⁺ in environmental water specimens.

Keywords: Graphene; Nafion; Nanocomposite; Cadmium ions; Electrochemical sensor; Water

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