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Abstract	:	In this study, development of zinc oxide reduced graphene oxide (ZnO/rGO) and iron oxide graphene oxide (Fe₂O₃/rGO) nanocomposite as electrochemical sensor for glucose determination in soft drinks is explored. The purpose of this research, is to improve the sensitivity, selectivity and stability of the sensor for accurate and reliable glucose determination. ZnO/rGO and Fe₂O₃/rGO nanoparticles involves the corporation of metal oxides onto the surface of reduce graphene oxide. Its acts as a support to the metal oxide with excellent conductivity by using simple hydrothermal method. The electrochemical performance of ZnO/rGO and Fe₂O₃/rGO were evaluated through cyclic voltammetry and electrochemical characterization including XRD, FESEM, TEM and FTIR. The XRD analysis confirmed successful synthesis of the ZnO/rGO and Fe₂O₃ with characteristic peaks corresponding to ZnO and Fe₂O₃ presence in the material. The FESEM and TEM images exhibited ahomogeneous distribution of ZnO and Fe₂O₃ nanoparticles on the surface of rGO sheets. The FTIR spectra provided evidence of the substances contains functional groups such as hydroxyl and carboxyl. The nanoparticles exhibit excellent sensitivity, high selectivity and a wide linear range for glucose detection. These electrochemical sensor properties which are selectivity and stability making them highly desirable for accurate glucose sensing of metal oxides nanoparticles with reduced graphene oxide. The highest current density for glucose oxidation is ZnO/rGO with 0.01792mA.cm⁻². For determination of glucose in soft drinks, the highest current peak is Fe₂O₃/rGO of Coca cola demonstrates 0.000124mA.cm⁻² respectively.