**Abstract**

Graphene has received considerable attention of all researchers employing globally in the area of materials science and technology. In this present work, Zinc oxide nanoparticles (GO-ZnO) anchored graphene oxide nancomposite is synthesized using chemical reduction method. The synthesized GO-ZnO nanocmopsites are subjected to FT-IR, XRD, SEM and EDAX techniques, in order to examine the functional, structural, morphological and elemental analysis. The X-ray diffraction analysis confirms the anchoring of well crystalline zinc oxide nanoparticles with the crystallite size of about 19 nm on the surface of graphene oxide. SEM analysis reveals the formation of spherical shape zinc oxide nanoparticles on the layered structured surface of graphene oxide. The enhanced electrochemical sensing property of the GO-ZnO nanocomposites is studied using cyclic voltammetry analysis. A glassy carbon electrode (GCE) modified with GO-ZnO nanocomposites (GO-ZnO/GCE) is fabricated for the rapid detection of onitrophenol. Under the optimal conditions, the GO-ZnO/GCE modified electrode shows the reduction potential at -0.6 V for the concentration of 220 μM of o-Nitrophenol in PBS buffer solution.