**Abstract**

 In this study, copper oxide nanoparticles decorated reduced graphene oxide-chitosan nanocomposites are prepared for reliable detection of hydrogen peroxide (H2O2). The RGO-CS-CuO nanocomposites are synthesized by chemical reduction method. The morphological and chemical structures of the nanocomposites are systemically evaluated by Fourier Transform Infrared Spectral Analysis (FT-IR), X-ray diffraction (XRD), Scanning Electron Microscopy (SEM) and Raman analysis. A potential application of RGO-CS-CuO nanocomposites-modified electrode as a biosensor to monitor H2O2 has been investigated. The electrochemical properties of the biosensor are investigated by cyclic voltammetry (CV). After optimizing all the experimental parameters, the RGO-CS-CuO nanocomposites on modified GCE showed a good performance towards the electrocatalytic reduction of H2O2. This method is simple, cost effective, sensitive and also can be used for the determination of H2O2 in real water sample*.*