**Abstract**

 Recently, graphene based nanocomposites have attracted huge attention to provide a novel sensor platform due to its potential application in electrochemical sensing. In this study copper oxide nanoparticles decorated on chitosan functionalized reduced graphene oxide nanocomposites have been used as a novel electrochemical sensor for the detection of p-Aminophenol. The nanocomposites are synthesized using chemical reduction method. The synthesized nanocomposites are characterized using X-ray diffraction anlayis (XRD), Fourier transform - infrared spectroscopy analysis (FT-IR), scanning electron microscopy analysis (SEM), Energy dispersive x-ray spectroscopy analysis (EDAX).Transmission electron microscopy analysis (TEM) and Selected area electron diffraction analysis (SAED). FT-IR spectral analysis shows that the band observed around 505 cm-1 corresponds to the Cu-O stretching vibration. XRD reveals that the prepared nanocomposites are crystallite in nature and the crystallite size varies from 9.6 to 18.5 nm. It is found that the spherical shaped copper oxide nanoparticles are homogeneously distributed on the surface of rough, thin, wrinkled reduced graphene oxide/chitosan nanosheets. The electrochemical properties are investigated using cyclic voltammetry. The influence of several factors such as pH of the supporting electrolyte and scan rate are optimized. The fabricated electrode under optimized conditions, showed a linear range of p-AP from 60 µM to 150 µM. Hence, the chitosan functionalized reduced graphene oxide/copper oxide nanocomposites modified GCE shows an excellent electrocatalytic activity towards the detection of p-AP due to its uniform dispersion of CuO nanoparticles on the large surface area of rGO/CS that leads to good electron transfer rate between p-AP and rGO/CS/CuO nanocomposite modified GCE. The prepared sensor can be used for real time detection in waste water.