**Abstract**

Graphene oxide is one of the most promising materials for electronic devices because of its unique properties. It is prepared from natural graphite flakes by modified Hummers method. A novel nitrogen doped graphene oxide/yttrium oxide (NGO/Y2O3) nanocomposites are prepared by chemical precipitation method. The X-ray diffraction analysis shows that the crystallite size of the NGO/Y2O3 is found to be around 23 nm, and scanning electron microscopy (SEM) reveals that the nanoparticles are uniformly dispersed on the surface of NGO sheets. FTIR spectra are employed to investigate the bonding interaction in GO and NGO/Y2O3 nanocomposites. The electrochemical activity of the prepared nanocomposites is investigated by cyclic voltammetry (CV) technique. The reduction peak current of NGO/Y2O3 is enhanced and reduction peak potential is increased which shows high current response in NGO/Y2O3 nanocomposites compared to Y2O3 nanocomposites. This suggests that the prepared nanocomposites have excellent electrochemical behavior and can be applied for supercapactior and solar cell applications.