**Abstract**

 Graphene, a monolayer of carbon atoms packed into a dense honeycomb crystal structure has attracted considerable attention and numerous investigations because of its unique nanostructure and its extraordinary properties. Graphene and its derivatives, such as graphene oxide (GO) and reduced graphene oxide (rGO), are ideal platforms for constructing graphene-based nanostructures for various applications. In this present work, metal nanoparticles are decorated onto the graphene surface which helps to increase the conductivity of nanocomposites and enhances the properties of the material. Thus graphene based metal nanocomposites are prepared by chemical reduction method. The structural and morphological properties of the prepared nanocomposites are investigated by X-Ray diffraction analysis and Field emission scanning electron microscopy (FE-SEM). The presence of functional groups in the synthesized nanocomposites are studied by Fourier transform infrared spectroscopy(FT-IR). XRD reveals that the product is well crystallized. Thus the prepared nanocomposites can be applied for biomedical applications.