

Abstract

Nanotechnology is expandability developing field for the synthesis of graphene based metal composite. The catalytic efficiency of metal nanoparticles can be used by fabrication of carbon nanosheets. Reduction of carbon nanotube including graphene involves the use of toxic chemicals that may be harmful for environment. The disclosure of green reduction opened a new synthetic way for the synthesis of graphene based metal nanocomposite. The green method for the formation of graphene based composites opened a gateway to eradicate the pollutants from waste water. In this, we reported a facile, eco friendly green method for the synthesis of Graphene based metal composite using green extract of aloe vera leaves as a stabilizing and reducing agent. The anti-bacterial activity of graphene based metal composite has been determined against gram positive and gram negative bacteria. The ultraviolet-visible UV spectroscopy at 284 and 388nm, and disappearance of peak in Fourier transform infrared spectroscopy have confirmed the reduction of graphene based metal composite using aloe vera extract. The synthesized graphene based metal composite showed excellent photocatalytic efficiency of about 96% in 2 hours for the degradation of methylene blue MB. Strong interaction, pi-pi interaction and high surface area were associated with removal ability of dyes. Anti – oxidant activity also been determined for GO and RGO-AgNPs and highest anti-oxidant activity of RGO-AgNPs has been determined as compared to GO.