ABSTRACT

In the present studies, GSC supported Bi$_2$WO$_6$/Fe$_3$O$_4$ nanoparticles were successfully synthesized by hydrothermal route. Prepared nanocomposite was characterized by X-ray diffraction, field emission-scanning electron microscopy, high resolution-transmission electron microscopy, Fourier transform infrared spectroscopy and energy dispersive X-ray analysis. The photocatalytic activity of sample was evaluated for the degradation of methyl orange dye under solar light. The effect of reaction time parameters such as contact time, effect of dye concentration, effect of catalyst dose and pH value were studied for the decolourization of methyl orange dye. Under solar light, GSC supported Bi$_2$WO$_6$/Fe$_3$O$_4$ nanocomposite showed significant photocatalytic activity and magnetic character. The photo degradation followed by pseudo first order kinetics with correlation coefficient ($R^2$) of 0.985