Ag@Graphene Oxide Nanocomposite as an Efficient Plasmonic Photocatalyst: A Facile Green Synthetic Approach

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Silver nanoparticles (Ag NPs) decorated graphene oxide (GO) composite was synthesized using supercritical carbon dioxide in the presence of glucose as a reducing agent. TEM and EDX analysis confirmed that Ag NPs of size around 8-20 nm were coated on the GO surface. The experimental results proved that the as-synthesized GO/Ag nanocomposite could be used as a highly efficient photocatalyst for the degradation of organic pollutants under visible-light irradiation. The degradation results indicated that the photocatalytic performance of GO/Ag nanocomposite was greatly enhanced owing to the improved adsorption performance and separation efficiency of photo-generated carriers. The nanocomposite maintains a high level activity even after four times of recycle.
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