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MAGNETICALLY SEPARABLE Ag_3PO_4/Fe_3O_4COMPOSITE : PREPARATION AND VISIBLE-LIGHT PHOTOCATALYSIS

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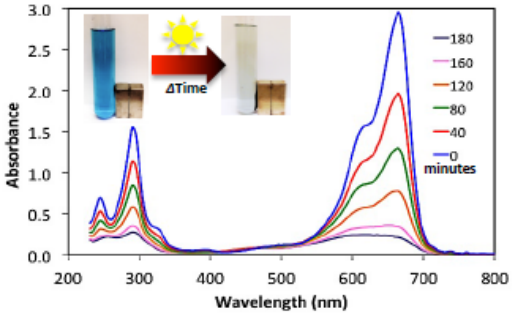
Abstract

In this study, magnetic Ag_3PO_4/Fe_3O_4 visible-light photocatalyst was successfully prepared by ionic exchange followed by coating of Fe3O4 nanopowder on the crystalline Ag_3PO_4 particles. Powder X-ray diffraction (XRD) and field emission scanning electronic microscope (FE-SEM) were used to characterize the powder products and the photocatalytic activity of Ag_3PO_4/Fe_3O_4 was evaluated by decolorization of methylene blue (MB), as a model organic pollutant, under visible-light irradiation. The photocatalytic results indicate that the as-prepared Ag_3PO_4/Fe_3O_4 particles were efficient to degrade organic pollutants under visible light and the photocatalyst itself could be easily separated from the aqueuse solution using external magntic field. This work shows a great potential of Ag_3PO_4/Fe_3O_4 composite particles for environmental purification of organic pollutants.



Keywords

Magnetic separation; Visible-light photocatalysis; Silver phosphate, Ag_3PO_4/Fe_3O_4