The Starting Material Concentration Dependence of Ag3PO4 Synthesis for Rhodamine B Photodegradation under Visible Light Irradiation

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Abstract	Synthesis of Ag3PO4 photocatalyst under the varied concentrations of AgNO3 and Na2HPO4Ã‚Â·12H2O as starting material has been successfully synthesized using the co-precipitation method. The concentration of AgNO3 is 0.1; 0.5; 1.0; and 2.0 M, whereas Na2HPO4Ã‚Â·12H2O is 0.03; 0.17; 0.33; and 0.67 M, respectively. The co-precipitations were carried out under aqueous solution. As-synthesized photocatalysts were examined to degrade Rhodamine B (RhB) under blue light irradiation. The results showed that varying concentrations of starting materials affect the photocatalytic activities, the intensity ratio of [110]/[200] facet plane, and their bandgap energies of Ag3PO4 photocatalyst. The highest photocatalytic activity of the sample was obtained by synthesized using the 1.0 M of AgNO3 and 0.33 M of Na2HPO4Ã‚Â·12H2O (AP-1.0). This is due to the high [110] facet plane and increased absorption along the visible region of AP-1.0 photocatalyst. Therefore, this result could be a consideration for the improvement of Ag3PO4 photocatalyst.
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