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Microwave Synthesis and characterization of silver phosphate and its visible-light photocatalytic activities

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Water pollution is a major problem that impact to the world environments. There are many methods to solve this problem such as physical, biological and chemical method. In chemistry, the researcher focuses to use the new photocatalyst to treat the water pollution. One of them, silver phosphate (Ag_3PO_4) has been attention because it has high photocatalytic activities. In this research Ag_3PO_4 was synthesized by microwave irradiation method. They study the effected of pH value. Then, the products were characterized by X-Ray diffraction (XRD), Fourier Transform Infrared (FT-IR) spectroscopy, and scanning electron microscopy (SEM). The results show the products are pure Ag_3PO_4, not detect the impurity. The morphologies of the product are particles in the range size about 0.32-1.44 micrometers. Then, the photocatalytic property of as-synthesized Ag_3PO_4 was tested by the degradation of methylene blue dye in water and investigated by UV-visible spectrophotometer. The results show Ag_3PO_4 which synthesized by microwave irradiation with pH 4 at 180 W for 3 h is the highest degradation MB efficiency about 99.56 percent for 100 min.

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