

Facile Synthesis of Ag₃PO₄ Photocatalyst with Varied Ammonia Concentration and Its Photocatalytic Activities For Dye Removal

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Author Order	6 of 7
Accreditation	
Abstract	The highly active photocatalyst of Ag ₃ PO ₄ could be synthesized under ammonia solution using the facile co-precipitation method with the starting material of AgNO ₃ and Na ₂ HPO ₄ .12H ₂ O. The variation of ammonia concentration was designed at 0.00, 0.05, 0.15, and 0.30 M. The products were characterized using X-ray diffraction, UV-diffuse reflectance spectroscopy, and scanning electron microscopy. The photocatalytic activities were evaluated using the Rhodamine B degradation under blue light irradiation. The effect of calcination, pH condition, and visible light source irradiation was carried out in the experiment. The highest photocatalytic activity was found in the sample prepared using the addition of ammonia solution at the concentration of 0.05 M. This photocatalytic activity was 4.13 times higher compared to the Ag ₃ PO ₄ prepared without the ammonia. The effective condition of photocatalytic activity was achieved at the sample prepared without calcination, degradation at pH of 7 and under blue light irradiation.
Publisher Name	Masyarakat Katalis Indonesia - Indonesian Catalyst Society (MKICS)
Publish Date	2019-04-15
Publish Year	2019
Doi	DOI: 10.9767/bcrec.14.1.2549.42-50
Citation	
Source	Bulletin of Chemical Reaction Engineering & Catalysis
Source Issue	2019: BCREC Volume 14 Issue 1 Year 2019 (April 2019)
Source Page	42-50
Url	https://journal.bcrec.id/index.php/bcrec/article/view/2549/2230
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