

The Surface Modification of Ag₃PO₄ using Tetrachloroaurate(III) and Metallic Au for Enhanced Photocatalytic Activity

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Abstract	The improvement of Ag ₃ PO ₄ photocatalytic activity was successful by incorporating tetrachloroaurate(III) (AuCl ₄ ⁻) and metallic Au on the surface of Ag ₃ PO ₄ . The photocatalysts were synthesized using the coprecipitation and chemisorption method. Coprecipitation of Ag ₃ PO ₄ was carried out under ethanol-water solution using the starting material of Ag ₃ PO ₄ and Na ₂ HPO ₄ center dot 12H(2)O. AuCl ₄ ⁻ ion and metallic Au were incorporated on the surface of Ag ₃ PO ₄ using a chemisorption method under auric acid solution. The photocatalysts were characterized using XRD, DRS, SEM, and XPS. The AuCl ₄ ⁻ ion and metallic Au were simultaneously incorporated on the Ag ₃ PO ₄ surface. The high photocatalytic activity might be caused by increasing the separation of hole and electron due to capturing photo-generated electrons by metallic Au and Au(III) as electron acceptors. Copyright (C) 2021 by Authors, Published by BCREC Group.
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