

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

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Abstract	<p>The improvement of Ag₃PO₄ photocatalytic activity was successful by incorporating tetrachloroaurate(III) (AuCl₄⁻)³ and metallic Au on the surface of Ag₃PO₄. The photocatalysts were synthesized using the coprecipitation and chemisorption method. Coprecipitation of Ag₃PO₄ was carried out under ethanol-water solution using the starting material of AgNO₃ and Na₂HPO₄·12H₂O. AuCl₄⁻ ion and metallic Au were incorporated on the surface of Ag₃PO₄ using a chemisorption method under auric acid solution. The photocatalysts were characterized using XRD, DRS, SEM, and XPS. The AuCl₄⁻ ion and metallic Au were simultaneously incorporated on the Ag₃PO₄ surface. The high photocatalytic activity might be caused by increasing the separation of hole and electron due to capturing photogenerated electrons by metallic Au and Au(III) as electron acceptors. Copyright © 2021 by Authors, Published by BCREC Group. This is an open access article under the CC BY-SA License (https://creativecommons.org/licenses/by-sa/4.0).</p>
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