

## عنوان مقاله:

Photocatalytic removal of ciprofloxacin antibiotic from aqueous medium by applying AgI/Ag<sub>2</sub>O nanocomposite: Activity test, reaction kinetics, and catalyst reusability

## محل انتشار:

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## خلاصه مقاله:

Background: This study examined the removal of ciprofloxacin (CIP), which is a very widely used antibiotic, from an aqueous medium by applying AgI/Ag<sub>2</sub>O photocatalyst under visible light radiation. Methods: AgI/Ag<sub>2</sub>O was synthesized conveniently by applying a two-stage precipitation method. The synthesized compound was characterized by X-ray powder diffraction (XRD), FE- field emission scanning electron microscopy (FE-SEM), energy dispersive x-ray (EDX), and UV-Vis spectrophotometry. Different parameters including initial pH of the solution, initial CIP concentration, reaction kinetics, and catalyst reusability were investigated. Results: Concurrent use of AgI and Ag<sub>2</sub>O caused improved photocatalytic properties in the presence of UV light. The pH and initial concentration of CIP affected the process efficiency; 95% efficiency was achieved within 100 min at pH 9. Furthermore, the process efficiency was still maintained over 90% after four consecutive cycles. Conclusion: The photocatalytic degradation process using AgI/Ag<sub>2</sub>O nanocomposite under visible light radiation is a suitable method for removing CIP from aqueous media due to its high efficiency and stability.

## کلمات کلیدی:

Ciprofloxacin, Nanocomposites, Photolysis, Catalysis, Antibiotic, Aqueous medium

