



Photocatalytic Elimination of Antibiotic Ofloxacin over Plasmonic AgBr Anchored with Co-Cr Layered Double Hydroxide as Solar-Light-Driven Nanophotocatalyst

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Abstract:

Currently, antibiotics, as non-biodegradable and emerging contaminants, are recognized as one of the most important environmental challenges. Photocatalysis process is an effective method for the degradation of resistant contaminants due to the low-cost and eco-friendly. In this study, the elimination of the antibiotic ofloxacin was investigated using the novel plasmonic AgBr anchored with Co-Cr layered double hydroxide (denoted as: AgBr-CoCrLDH-P) nanophotocatalyst with 3:1 weighted ratio under simulated sunlight, and to further evaluate, pure AgBr-P and Co-CrLDH samples were synthesized and employed in the ofloxacin degradation. For 25 mg/L ofloxacin solution, the photocatalytic efficiency of CoCrLDH, AgBr-P and AgBr-CoCrLDH-P after 120 min irradiation was found 11.4%, 65% and 83.6%, respectively. XRD and FESEM analysis were used to characterize the photocatalysts. According to the results, the AgBr-CoCrLDH-P nanocomposite exhibited significantly enhanced photocatalytic performance due to a large specific area, low band gap and good charge separation.

Biography:

Zahra Abdollahizadeh is M.Sc. student in Chemical engineering and Catalysis at Sahand University of Technology. She received her undergraduate degree in Chemical engineering from Azad University of Tabriz. She has been working in the Reactor and Catalysis Research Center (RCRC) at Sahand University of Technology since July 2018. Her field is catalyst, and she is the top student of this field. She is interested in environmental projects and is working on the photocatalytic degradation of the antibiotic pollutant from wastewaters. Her supervisor is Professor Mohammad Haghighi who is one of the prominent figures of this field. Zahra will be graduated next month and as soon as she is going to start her doctoral program.

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