

عنوان مقاله:

Synthesized Cu@Ag nanoparticles for colorimetric sensing and photocatalytic Applications

محل انتشار:

نخستین کنفرانس ملی چالش های محیط زیست: صنعت و معدن سبز (سال: 1401)

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نویسندگان:

Faranak Faghiri - *Department of Environmental Sciences, Faculty of Natural Resources, University of Kurdistan, Sanandaj, Iran*

Ashkan Miri - *Department of Environmental Sciences, Faculty of Natural Resources, University of Kurdistan, Sanandaj, Iran*

Farshid Ghorbani - *Department of Environmental Sciences, Faculty of Natural Resources, University of Kurdistan, Sanandaj, Iran*

خلاصه مقاله:

Here, sensing and photocatalytic activities of Cu@Ag nanoparticles and its nanocomposite are evaluated. The sensing property of them are investigated using malathion as a model of organophosphorus pesticides (OPPs), and the localized surface Plasmon resonance (LSPR) band position displayed a linear response with various concentration of target analyte. The prepared nanoparticles were found to be sensitive to malathion at a limit of detection of 0.014 mg/L. It is observed that sensing property is caused by the coordination of the sulfur moiety of malathion with the Ag shell of nanosensor induced aggregation. This phenomenon is referred to soft acid's reaction with soft base by formation of chelate. Further, the photocatalytic activity of Cu@Ag\APTMS\boehmite NPs is evaluated by methylene blue (MB) dye solution under irradiation by visible light. In the batch system, the dye was degraded by 80.3% under visible light irradiation within 2820 min in the optimum condition (pH = 6, dye concentration of 10 mg/L, catalyst dosage of 2 g/L). Thereby, the prepared NPs would be an appropriate candidate sensing with photocatalyst properties

کلمات کلیدی:

Cu@Ag, sensor, photocatalyst, malthion, methylene blue dye

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