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Preparation of ZnS nanocrystal and investigation of its photocatalytic activity in removal of C.I. acid blue 9 from contaminated water

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ABSTRACT

Zinc sulfide (ZnS) nanocrystals in the cubic structure with the mean diameter size of 6 nm were prepared via precipitation method and examined as a photocatalyst for the UV-induced removal of C.I. Acid Blue 9 (AB9) from contaminated water as a deputy of organic pollutants. The effects of various parameters, such as UV light intensity, effect of addition of peroxydisulfate ($S_2O_8^{2-}$) and periodat (IO_4^-) on the photo catalytic decolorization of AB9 were investigated. The results showed that the removal efficiency of AB9 through UV/ZnS process increased with increasing illumination intensity, $S_2O_8^{2-}$ and IO_4^- concentrations.

Keywords: Advanced Oxidation Processes (AOPs); Inorganic oxidant; Nanoparticles, Photocatalysis; Wastewater; Zinc sulfide

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