22nd Iranian Chemistry Conference, 23-25 August, 2023
University of Kurdistan

Synthesis and modification of KIT- 6 with Zn doped CdS nanoarchitectures and its application in photocatalytic degradation of methyl green

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In this study, The mesoporous silica KIT-6 modified with Zn doped CdS nanoarchitectures was prepared for efficient photocatalytic property, The degradation of methyl green in aqueos solution under visible light was taken as a photocatalytic test. The prepared nanocomposite was characterized by X-ray Diffraction (XRD), nitrogen adsorption-desorption analysis (BET), FT-IR, field effect scanning electron microscopy (FE-SEM) and UV−Vis spectroscopy. The results show that CdS with small amount of Zn doping can lead to an enhanced photocatalytic activity of Zn-CdS/KIT-6. We found that The mesoporous silica KIT-6 with high surface area and three-dimensional connections with a network of interconnected channels is a suitable choice of support for these nanoarchitectures [1,2]. The obtained data from UV-Vis studies shows that 5mg of the prepared photocatalyst containing 4.8% of Zn doped CdS species can degrade 50 ml of methyl green solution with concentration of 18 mg/l within 45 min under visible irradiation. The stability of the prepared photocatalyst was checked and it can be used for several times without losing much of its activity.

***Keywords*: CdS, KIT-6, methyl green, photocatalysis**

References

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