

REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTION BY BiVO₄/MCM-41 NANOPARTICAL

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ABSTRACT

BiVO₄/MCM-41 nanocatalysts are successfully synthesized via hydrothermal method to enhance the catalytic activity of MCM-41. The nanocatalysts were characterized by Fourier transform infrared spectroscopy and X-ray diffraction. The adsorption performance of BiVO₄/MCM-41 for adsorption of methylene blue is investigated. BiVO₄/MCM-41 nanocatalysts reveal enhanced adsorption activity for methylene blue in water as compared to pure MCM-41 catalyst. The results indicate that the adsorption capacity of BiVO₄/MCM-41 nanocatalysts for adsorption of methylene blue increases with the modification of MCM-41 by nano-BiVO₄ from 3wt% to 25wt% BiVO₄ content, the sample of 25wt% BiVO₄ loaded on MCM-41 shows higher adsorption activity and adsorption capacity.

KEYWORDS: Adsorption, Methylene Blue, Nanoparticle, BiVO₄, MCM-41