Simple and Green Synthesis of Mesoporous $ZnFe_2O_4$ by the SDS Surfactant and its Application as an Adsorbent of Methylene Blue from Aqua Media

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Abstract

In this study, mesoporous $ZnFe_2O_4$ was synthesized via the simple and green hydrothermal method in the presence of SDS as a surfactant and analyzed by XRD, FT-IR, SEM, VSM, DRS, and BET techniques. The SEM images showed that the prepared particles had sizes of about 50-150 nm. The obtained result from the BET analysis showed that the mean diameter of hollows was about 8.45 nm. The area and volume of hollows were 161.87 m^2/g and 0.34 cm^3/g, respectively. The VSM curve of mesoporous $ZnFe_2O_4$ showed the magnetic property of it. The adsorption ability of this magnetic mesoporous was studied for the removal of methylene blue from aqua media.

Keywords: $ZnFe_2O_4$, mesoporous, pollutant of methylene blue, Surfactant, SDS

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