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High Performance Methyl Orange Capture on Magnetic Nanoporous MCM-41 Prepared by Incipient Wetness Impregnation Method

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Abstract : This work is aimed to prepare magnetic nanoporous material Fe/MCM-41 and study its Physical characterization in order to enhance the magnetic properties for study the operating conditions on separation efficiency of methyl orange (MO) from wastewater by adsorption process. The experimental results are analysed to select the best operating conditions for different studied parameters which were obtained for both adsorbents mesoporous material samples MCM-41 and magnetic Fe/MCM-41 as follow: constant temperature (20 ºC), pH: (2) adsorbent dosage (0.03 gm), contact time (10 minute) and concentrations (30 mg/L). The results are demonstrated that the adsorption processes can be well fitted by the Langmuir isotherm model for pure MCM-41 with a higher correlation coefficient (0.999) and fitted by the freundlich isotherm model for magnetic Fe/MCM-41 with a higher correlation coefficient of (0.994).

Keywords : adsorption, nanoporous materials, mcm-41, magnetic material, wastewater, orange, wastewater
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