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Alizarin red S ARS removal on rGO / Fe₃O₄ nanocomposite by adsorption from contaminated water

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In this study, graphene oxide (GO), produced using the modified Hummer's method, (rGO) produced using ultra violet light. (rGO / Fe₃O₄) composite prepared by hydrothermal method. and it's used as adsorbent to remove Alizarin Red S (ARS) dye from aqueous solution. Characterizations using Field emission scanning electron microscopy (FE-SEM) , powder X-ray diffraction (XRD) , FTIR , energy dispersive X-ray spectroscopy (EDX) were carried out on the rGO / Fe₃O₄ before the ARS adsorption experiments. The adsorption isotherms studies were conducted under

different conditions (pH = 3-11, ARS concentration = 5-40 mg/L and Weight of composite= 0.005-0.25 g) to examine the adsorption efficiency of the rGO / Fe₃O₄ towards ARS in aqueous solution. The obtained results showed that the maximum adsorption capacity of the rGO / Fe₃O₄ towards ARS can achieve up to ~0.1g for the adsorption at 10 mg/L ARS at 50 C. and the maximum adsorption capacity of the rGO / Fe₃O₄ towards ARS can achieve up to pH=7 and 0.25 g for composite.

Biography

Ayad Alkaim has completed his PhD at the age of 32 years from Babylon University and Professor Visitor from School of Technic Chemie, Hannover University, Germany. He has published more than 30 papers in reputed journals and has been serving as an editorial board member in several journals of sciences.

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