

عنوان مقاله:

Multi-walled Carbon Nanotube-CO-NH(CH₂)₂NH-SO₃H: A New Adsorbent for Removal of Methylene Blue from Aqueous Media

محل انتشار:

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خلاصه مقاله:

In this study, Multi-walled carbon nanotube-CO-NH(CH₂)₂NH-SO₃H was prepared through the functionalization of commercial multi-walled carbon nanotubes in three steps and then it was characterized using Fourier Transform Infrared Spectroscopy (FTIR) and Transmission Electron Microscopy (TEM). In addition, the adsorption of Methylene Blue was investigated by using these nanotubes. In order to remove dye, the effects of different parameters including stirring time, pH value, the initial concentration of dye, and the amount of carbon nanotubes were studied. More than 99.5% of dye was removed at neutral pH within a short time. Pseudo-second-order equation was predicted by adsorption kinetic. Different isotherms were studied to define adsorption mechanism and Langmuir model showed the best result compared with other isotherms. This project offers a facile and efficient adsorption method for removing Methylene Blue from aqueous solution. Short stirring time, neutral pH and high q_{max} (the maximum adsorption capacity in saturated single layer) are the significant characteristics of this research.

کلمات کلیدی:

Multi-walled carbon nanotubes, Methylene blue, Aqueous solution, Adsorption

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