عنوان مقاله:

The MoS۲/S-doped graphitic carbon nitride: synthesis and application as a composite for removing organic pollutant

محل انتشار:

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خلاصه مقاله:

The MoS۲/S-doped graphitic carbon nitride (MoS۲/S-g-C۳N۴) was synthesized by a simple method and applied for methylene blue (MB) removal as an organic pollutant. The structure of MoS۲/S-doped graphitic carbon nitride was characterized using FTIR, XRD, SEM, TGA and BET techniques. The accomplishment of MoS۲/S-doped graphitic carbon nitride as an adsorbent was investigated to removal of MB from aqueous solution. The various parameters were studied such as: pH, initial MB concentration, adsorbent dose, temperature and time. The best findings were obtained at pH=۸, ۸ ppm MB concentration, ۰.۰۵ g MoS۲/S-g-C۳N۴, ۳۰ min and ۲۲ ˚C. The Langmuir isotherm model was adopted with the obtained data. The kinetic studies were showed that the adsorption of methylene blue can be well described by the second-order equation. Maximum adsorption was calculated as ۱۶۶ mg/g. The degradation of MB was studied by MoS۲/S-doped graphitic carbon nitride under Light Emmition Diode (LED). Results showed that the MoS۲/S-doped graphitic carbon nitride can enhance photocatalytic activity compared to pure g-C۳N۴ and MoS۲/g-C۳N۴. The findings confirmed that the MoS۲/S-doped graphitic carbon nitride can be applied as an efficient, low-cost adsorbent, and photocatalyst to remove of cationic dyes such as methylene blue.

کلمات کلیدی:

MoS۲/S-doped graphitic carbon nitride, Adsorption, Methylene blue, Degradation