

عنوان مقاله:

Adsorption of Methylene Blue from Aqueous Solutions by Silk Cocoon

محل انتشار:

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خلاصه مقاله:

This study concerns the performance of cocoons spun by silk worms as a natural adsorbent for removal of Methylene Blue (MB) from aqueous solutions. To study the adsorption process, the effect of various parameters such as contact time, adsorbent dosage, dye initial concentration, and pH of the solution were investigated. According to the experiments, the kinetic data were best described by pseudo second order model and the equilibrium data were properly fitted to Langmuir model. The maximum adsorbent capacity at ambient temperature was calculated to be 86.2 mg/g. Thermodynamic analysis showed that the process was spontaneous, endothermic with increased randomness at the solid-liquid interface. It was also observed that by manipulating the pH of the solution in acidic range, the adsorbed dye would desorb into the solution suggesting the reusability of the adsorbent. Macroscopic size of the adsorbent offered an additional advantage of ease of its separation from ease of separation from the solution.

کلمات کلیدی:

Natural Adsorbent Methylene Blue Removal Silk Cocoon Water Treatment Adsorption

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