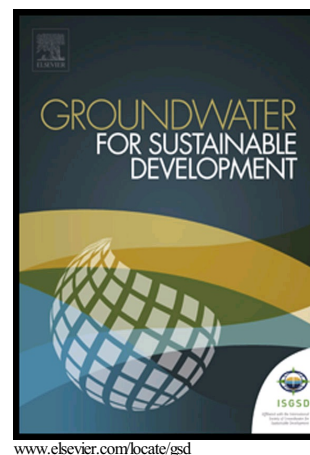


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Removal of a cationic dye from aqueous solution by natural clay

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Abstract

In this work, removal of methylene blue (MB) dye from aqueous solution by natural clay of Agadir region was carried. The parameters influencing the adsorption of MB such as contact time (20 - 120 min), adsorbent dose (0.4 - 4 g.L⁻¹), initial dye concentration (100 - 900 mg.L⁻¹), temperature (22 - 60 °C) and pH of the solution (3 - 10) were studied. The obtained results showed that the adsorption of MB onto clay is strongly dependent on the temperature, the initial dye concentration and the pH of the solution. The Kinetic study indicated that the adsorption of MB on the clay was well adapted to the pseudo-second-order kinetic with a correlation coefficient $R^2 = 1$. Langmuir model described better the adsorption of MB with a maximum adsorption capacity of 322.58 mg.g⁻¹. The Thermodynamic study suggested that the adsorption of cationic dye is physisorption, spontaneous and endothermic. Desorption and regeneration studies showed that the studied support can be considered as an effective, regenerable and reuse adsorption material.

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