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# Investigation of Sorption of Methylene Blue (MB) Dye on burnt brick clay particles

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A major problem concerning textile wastewater is the colored effluent, which is present at high concentrations. The discharge of colour waste not only damages the aesthetic nature of receiving streams but also causes toxic environment to aquatic life. In this study, low-cost, locally available burnt brick clay was used as an adsorbent for the removal of methylene blue (MB), a cationic dye, from aqueous solution. Adsorption equilibrium studies carried out with a series of MB solutions of different dye concentrations with kiln fired brick clay indicate that a 10 min stirring time and 1 hr settling time would be adequate to reach equilibrium. The extents of removal of MB by brick clay fired at different temperatures indicate that the maximum interaction occurs with brick clay fired at 500°C. However, there is no significant impact of the medium pH within a range of pH from 2.0 to 12.0.

Interaction of MB with brick is strong, resulting in a chemisorbed layer on brick particles. This is supported by FTIR spectroscopic information, where new spectral peaks are observed for MB treated burnt brick clay after thorough washing. The adsorption of MB on brick particles is further supported by Langmuir and Freundlich adsorption isotherms.

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