

Removal of Methylene Blue from Waste Water Using Activated Carbon Prepared by Impregnating it with KOH and CaCl_2

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Abstract: In this work, removal of methylene blue from waste water through adsorption was studied using activated carbon prepared from agricultural waste by impregnating it with KOH and CaCl_2 . On adsorption capacity the influence of pH was noted. An overview about adsorption was given. Comparison and investigation on kinetics of adsorption (two parametric models) was done referring to various other research papers. Various isotherm models were studied among which Langmuir isotherm was found to be the most suitable for this study as it works for monolayer adsorption. Chemically activated carbon was found to be more effective than physically activated carbon because of its better pore structure. Experimental set up was made using a magnetic stirrer in which contact was made between MB dye and adsorbent in different batches to determine the maximum capacity, batch experiments were carried varying initial dye concentration, adsorbent dosage, pH, agitation speed, contact time and temperature. Increase in temperature increased the rate of adsorption.

Keywords: Methylene blue [MB], waste water, dye, adsorption, removal, activated carbon

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