REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTION BY CHEMICALLY TREATED DURIAN LEAVES

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ABSTRACT

REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTION BY CHEMICALLY TREATED DURIAN LEAVES

Chemically treated durian leaves (CTDL) is use to observe the new alternative adsorbent in removing MB from wastewater through adsorption process. The interactions between MB and the functional group in CTDL was confirmed by Fourier Transform Infrared (FTIR). A several parameters that influence in the adsorption process was studied such as the effect of adsorbent dosage of CTDLP and initial pH of MB in aqueous solution. This study was done at initial pH of MB which is at pH 6, the dosage is 0.04 g of CTDLP for 90 min at temperature 30 ^{o}C and the removal of MB is 95.93%. The adsorption data fit well in Langmuir isotherm model more than Freundlich isotherm model. Based on Langmuir isotherm model, the maximum monolayer adsorption capacity of MB is 125 mg g^{-1} and $R^2 \geq 0.989$. The best adsorption process in kinetic study showed in pseudo-second-order which is $R^2 \geq 0.999$.