Investigation on the efficiency of treated Palm Tree waste for removal of organic pollutants

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Development of the industrial sector generates several problems of environmental pollution. This issue rises concern among scientific community and decision makers, in this work; we e interested in water resources polluted by the chemical substances, which can cause various problems of health. As an example, dyes generated by different industrial activities such as textile, cosmetic, metal plating, leather, paper and plastic sectors, constitute an important source of pollution. In this work, we aim at investigating the efficiency of palm tree waste for removal of dyes from polluted solution.

Our work presents a double environmental aspect, on one hand it constitutes an attempt for valorization of Palm Tree waste, and on the other hand it provides natural adsorbent.

The study focuses on the effectiveness of the waste in removing Methylene Bleu and Methyl Orange taken as models of pollutants from aqueous solution. Kinetics and isotherm experiments were conducted in order to determine the sorption behavior of the examined dye. The effects of initial dye and adsorbent concentrations are considered. The results indicate that the correlation coefficient calculated from pseudo-second order equation was higher than the other kinetic equations, indicating that equilibrium data fitted well with pseudo-second order model where adsorption process was chemisorption. The adsorption equilibrium was well described by Langmuir isotherm model.