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PREPARATION OF ACTIVATED CARBON FROM REED PHRAGMITES AUSTRALIS (CAV.) AND A STUDY OF ITS EFFECTIVENESS IN ADSORPTION OF MALATHION

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ABSTRACT

Thermally Activated Carbon (TAC) was prepared by thermal treatment of a widely spread type of reed (Phragmites Australis (Cav.)) to obtain an environmentally friendly, efficient and low-cost adsorbent, and its adsorption behavior for malathion pesticide from water studied by the batch method. Characterization of TAC was investigated by "scanning electron microscopy" (SEM) and "Fourier trans form infrared spectroscopy" (FT-IR). The TAC performance was evaluated in removing Malathion under different experimental conditions. Langmuir and Freundlish isotherms were applied, it's also applied two kinematic models, the "pseudo first order" and the "pseudo second order". The study revealed the following; the maximum absorption capacity 12.33 mg/g , and that increasing the contact time(before reaching equilibrium), adsorbent dose and the adsorbate initial concentration increase the efficiency of adsorption, as for increasing the temperature, it reduces this efficiency. It was also found that adsorption process is affected by the PH, and the adsorption data are well fit with the "Langmuir isotherm". The kinetic of adsorption is subject to a "pseudo-second-order model", The process also turned out to be exothermic and spontaneous.

KEYWORDS: *Adsorption, Malathion, Phragmites Australis, Environment, Isotherm*

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