ADSORPTION OF NICOSULFURON - HERBICIDE BY VARIOUS SURFACE MODIFIED STRAW AS LOW COST ADSORBENTS

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Introduction. The presence of pesticides in the enviroment, is a major concern due to their adverse effects to many forms of life. In this work, different types of agri wastes – corn, soybean and wheat straw were evaluated as a low cost adsorbent for the herbicide nicosulfuron adsorption.

Material and methods. The new adsorbents have been obtained in a simple reaction of KOH activation and mineralization (850ºC). The morphology, the properties and the composition of the adsorbents were investigated by FTIR and scanning electron microscopy - SEM. Batch experiments were conducted under constant pH (7) and different initial concentration (10-100 mg L^{-1}) and contact time (0-30 h) to study the adsorption isotherms and kinetics of nicosulfuron.

Results. The SEM features indicated the rough surfaces with increased specific area. The adsorption isotherm data were well fitted by Langmuir model, whereas the adsorption kinetics followed the pseudo-second-order kinetic model.

Conclusions. The reported findings, indicate that the studied materials are excellent adsorbents for efficient removal of nicosulfuron from aqueous solution.

Keywords: *agri-wastes, environment, kinetics, soil, sulfonylurea*