

## **Sorption/Desorption Kinetics and Equilibria of Atrazine, Diuron, And Bensulfuron Methyl on Selected Soils**

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Sorption/desorption isotherm equilibria and kinetics of atrazine, diuron, and bensulfuron methyl were conducted (batch techniques) on several selected soils. Results indicated that the content of organic matter was the major variable contributing to diuron and bensulfuron methyl sorption. The low  $1/n_d$  (isotherm slope for desorption) values showed that both pesticides were not readily desorbed from the soils tested. The rates of sorption were more rapid than those of desorption for atrazine and bensulfuron methyl, especially in the case of bensulfuron methyl on the soil with a high content of organic matter (57.5%), which was extremely fast, compared to the other types of soils with either high clay (56.4%) or high sand (91.6%). The slow rates of desorption were presumably associated with the heterogeneous nature of the soil, and potential hysteresis phenomena. The energy of activation values for both sorption ( $E_a = 11-25$  kJ/mol) and desorption ( $E_d = 18-38$  kJ/mol) suggested that transport or diffusion control is rate-limiting for both processes.