Abstract

Isotherms and kinetic studies on adsorption of N-(3,4-dichlorophenyl)-N,N-dimethyl urea (diuron) by Lake Naivasha soils from Kenya was studied by in terms of adsorption isotherm model. Modeling of experimental adsorption isotherm data is an essential method for predicting the mechanisms of adsorption, leading to an improvement in the area of adsorption science. In this paper, Freundlich, Quasi-Langmiur and Temkin isotherm models were employed to correlate data from the batch mode experiments. The linearized isotherm models were compared and discussed. To determine the best fit isotherm model, the correlation coefficient (r2) for each parameter was used in order to evaluate the anticipated data. Results obtained showed that adsorption coefficient of linearized isotherms for diuron in tested soils' well fitted the Quasi-Langmuir and Freundlich equations. The average values of the apparent equilibrium constant K', n and free energy (ΔG) were 18.33, 0.57 and -7.08Kj/mol, respectively. The value of KF, KL, Ka and KT ranged from 0.00067 to 33.3378. BT, which is related to the heat of adsorption, ranged from 25.33 to 144.50 KJ/mol.