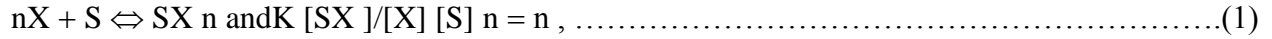


Abstract

The adsorption properties of 1-naphthol N-methylcarbamate (Carbaryl) by soils in aqueous solutions from Lake Naivasha was studied in terms of the first order model of a binary solution, which is expressed as follows:



X is the chemical species of interest, carbaryl (pesticide), S is the substrate (soil particles), K is the adsorption equilibrium constant and SX_n is the particle-pesticide complex. According to this model, the apparent adsorption equilibrium constant K' is given by equation 2:

$$\ln [X]_{ads} = \ln(nk') + n(\ln [X]_e + [SX_n]_w) \quad (2)$$

where $[X]_{ads}$ is concentration of X in adsorbed state. $[X]_e$ is the concentration of X in solution at equilibrium. $[SX_n]_w$ is the pesticide adsorption site complex in the suspension at equilibrium. The average values of K' (the apparent adsorption equilibrium constant), n and $\Delta G'$ (the apparent adsorption free energy) for Lake Naivasha soils obtained for Carbaryl were 20.56, 0.63 and -7.26 KJ/mol, respectively.