Sorption of Pendimethalin on Soils of Andhra Pradesh

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ABSTRACT

Adsorption desorption of pendimethalin in soils was studied by Batch equilibrium technique at five different initial concentrations of pendimethalin. Adsorption isotherms were conformed to the Freundlich equation. The desorption process exhibited pronounced hysteresis in all the soils, which was more prominent when desorption was carried out at higher concentration of herbicide and the percent cumulative desorption was high in soils with low organic carbon content .The values of Freundlich constant, K_f were ranged from 0.28 to 2.83 for pendimethalin, The Freundlich constants K_f and n increased with increasing initial concentration of adsorbed herbicide thus confirming the irreversible nature of the adsorption of pendimethalin of these soils. The per cent cumulative desorption was high in soils with low organic carbon content. Freundlich 'K_f' values which indicate the extent of binding of herbicide to the soil constituents were positively and significantly correlated with organic carbon (r = 0.94**), clay content (r = 0.91**) and clay + OC (r = 0.92**).

Key words : Freundlich Constants, Hysteresis, Pendimethalin, Sorption.