SOIL SCIENCE

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Abstracts

Soil Colloids and Behavior of Pesticides in Soils.[1] JOE L. WHITE and MARIBEL CRUZ,[2] Purdue University, Lafayette, Indiana 47907.—— The interaction of pesticides with soil is largely dependent upon the nature and properties of the surfaces of the colloidal components of the soil. Interactions of organic molecules with surfaces of aluminosilicate minerals have been studied by infrared and other spectroscopic techniques. These studies have provided evidence for the mechanisms involved in adsorption, bonding, and degradation of several groups of pesticides by inorganic soil components. The role of the higher degree of dissociation of water molecules on clay surfaces ("surface acidity") in the protonation and hydrolysis of chlorotriazines has been established by this work. These studies also suggest that competition between pesticide molecules and water molecules for adsorption sites, together with changes in the environment of the pesticide molecules resulting from physical adsorption processes, may explain desorption and volatilization losses.

[1]Journal Paper No. —— Purdue University Agricultural Experiment Station.

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The Precision Associated with Sampling Frequences of Total Particulate at Indianapolis, Indiana. DALE E. PHINNEY and JAMES E NEWMAN, Agronomy Department, Purdue University, Lafayette, Indiana 47907.—— The frequency distribution of total suspended particulate matter for Indianapolis, Indiana, was examined to determine the precision associated with a given sampling scheme. By assuming a basic $\log_e$-normal distribution, a theoretical set of confidence intervals about the geometric mean was derived for random sampling. Verification of the $\log_e$-normal distribution was made for particulate matter in Indianapolis. Application of the derived confidence intervals revealed that for a 30-day period 20 samples must be taken to ensure that the 90 per cent confidence interval will be within 10 per cent of the geometric mean. Analysis of the records for 19 sampling locations showed that only 2 sites possessed sufficient data to allow monthly climatological evaluation over the period 1968-1970.

OTHER PAPER READ

The Good in Pollution. A. J. OHLROGGE, Purdue University.