Assessing the Mobility of Carbadox and Metabolites Through Soils: Batch Partitioning and Column Studies. (A05-strock143009-Oral)

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Abstract:

Carbadox is one of the most widely used antibiotics in the swine industry. However, toxicological studies have shown chronic exposure to this antibiotic and some of the byproducts created through its metabolism to be a health risk to animals. Although the FDA regulates the amount of carbadox and its metabolites permitted in edible swine tissues, very little research to date has focused on the fate of carbadox residues in soils and water from runoff, lagoon treatment systems, and land application of manure. Batch equilibration studies were conducted to determine sorption, transformation and transport parameters of carbadox and its reduced N-oxide metabolites in soils and manure. Carbadox sorption was best correlated to organic carbon (OC) with an average log OC-normalized partition coefficient of 3.95. The parent compound was found to be stable at the concentrations used in the batch studies over the time course of the experiments. The predominant forms of carbadox present in manure, however, are the reduced metabolites. Concentration changes in these metabolites were monitored in a simulated commercial manure pit study, the results of which will also be presented.

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