Adsorption of Antibiotics on Soils. (A05-kumar103502-Poster)

Authors:

- K.Kumar - *University of Minnesota*
- A.Thompson - *University of Minnesota*
- A.K.Singh - *University of Minnessota*
- S.C.Gupta - *University of Minnesota*

Abstract:

Distribution and fate of the antibiotics applied on land through manure application strongly depend upon their inherent properties such as the adsorption coefficient to soil. Linear sorption coefficients (Kd, solid) of three antibiotics namely chlortetracycline, tetracycline and tylosin on two soils (Hubbard sandy loam and Webster clay loam) were determined using the batch experiment. For three antibiotics, Kd, soild for Webster clay loam was higher than for Hubbard sandy loam. The Kd, solid values of Webster clay loam for chlortetracycline, tetracycline, and tylosin were 2386, 2370, and 92 L/kg as compared to 1280, 1147, and 66 L/kg for Hubbard sandy loam. For these antibiotics and soils, the variation was considerably lower when Kd, solid values were normalized for organic carbon (KOC). Breakthrough experiments with Hubbard sandy loam also showed similar differences in the mobility of these three antibiotics. At C/Co=0.2, the retardation coefficient for tylosin was 23 compared to 51 for tetracycline. However for chlortetracycline, C/Co of 0.2 was not achieved even after 100 pore volumes were passed.

Corresponding Author Information:

Kuldip Kumar
University of Minnesota
2008 Brewster St #203
Saint Paul, MN 55108

phone: 612-624 7737
fax: 612-625 2208
e-mail: kkumar@soils.umn.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 2:00-4:00 pm
Poster Board Number: 335

Keywords:

antibiotics, , water quality, antibiotics in manure, antibiotics in environment