The Effect of Agricultural Antibiotics on Persistance of 17 beta-estradiol in Soil. (S11-lee153424-Poster)

Authors:

- S.Chun* The University of Tennessee
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Abstract:

Land application of animal wastes containing elevated levels of the endocrine-disruptor, 17 beta-estradiol, could potentially contaminate soil and water. In addition to estrogens, animal wastes often contain antibiotics as well as nutrients. The presence of antibiotics may affect the degradation of 17 beta-estradiol in soil by altering microorganisms in the soil system. Laboratory soil incubations experiments were to examine the effect of three antibiotics, sulfamethazine, tylosin, and chlortetracycline, on persistence of 17 beta-estradiol. Preliminary data from these experiments indicated that 17 beta-estradiol degraded at a faster rate in non-sterilized soil than in autoclaved soil, which suggested prevalent microbial degradation in the non-sterile soil. The presence of antibiotics significantly reduced the microbial degradation of 17 beta-estradiol, and chlortetracycline had the largest effect. The implications of these studies for proper risk assessment and improving our predictive capability for fate and transport of endocrine disruptors in soil will be discussed.

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