

Infectious Prion Proteins in Soils. (S03-pedersen283491-oral)

Authors:

- J.A. Pedersen* - *Univ. of Wisconsin - Madison*
- K.E. Phillips - *Univ. of Wisconsin - Madison*
- C.J. Johnson - *Univ. of Wisconsin - Madison*
- D.I. McKenzie - *Univ. of Wisconsin - Madison*
- J.M. Aiken - *Univ. of Wisconsin - Madison*

Abstract:

Compelling circumstantial evidence suggests that soil may serve as an environmental reservoir for the infectious agent in transmissible spongiform encephalopathies (TSEs) of ovids and cervids. Sorption to specific soil constituents likely contributes to the preservation of TSE agent in the environment. We investigated the association of the scrapie-specific isoform of the prion protein (PrP^{Sc}) to well-defined soil components as an initial step in determining the influence of sorption on the environmental stability of the infectious agent. Batch sorption experiments were conducted with Na- and Ca-saturated Wyoming montmorillonite and quartz sand to determine the extent of adsorption to these minerals. Nonsorbed and mineral surface-adsorbed PrP^{Sc} were separated by low-speed centrifugation, and the amount of PrP^{Sc} adsorbed determined by Western blot analysis. Initial results indicate that the PrP^{Sc}-adsorption capacity of clay minerals substantially exceeds that of quartz sand. These results have important implications for the mobility and bioavailability of the infectious agent in soil environments.

Speaker Information: Joel Pedersen, Univ. of Wisconsin - Madison, Department of Soil Science University of Wisconsin, Madison, WI 53706-1299; Phone: 608/263-4971; E-mail: joelpedersen@wisc.edu

Session Information: Wednesday, November 5, 2003, 1:25 PM-3:45 PM

Presentation Start: 3:30 PM

Keywords: chronic wasting disease; prion; transmissible spongiform encephalopathy; scrapie