Removal of Bacteriophage from Aqueous Systems by An Anionic Clay. (A05-you113349-Poster)

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Abstract:

Pathogenic viruses in wastewaters, septic field leachates, and sewage sludges are potential contaminant sources of drinking water. The increasing concern over pathogenic microbial contamination of drinking water requires additional research efforts for developing natural or synthetic materials as sorbents for removing viruses. In this study, a magnesium/aluminum layered double hydroxide (Mg-Al LDH) was investigated as a sorbent to remove a model bacteriophage, MS2, from an artificial groundwater solution. Batch results indicate that, within the concentration range studied, sorption isotherms were linear and MS2 sorption on Mg-Al LDH was rapid. In the pH range studied (4.8-9.0), the retention of MS2 by Mg-Al LDH was relatively constant. To test the sorption capacity of Mg-Al LDH for MS2 on a larger scale, column (3.5 x 8 cm) studies were conducted using sands coated with Mg-Al LDH and sand with oxides removed. Results indicate that there was no breakthrough after 49 pore volumes in Mg-Al LDH coated sand, whereas MS2 breakthrough with a steady outflow concentration (C/C0 = 0.86) occurred after 5 pore volumes with sands without oxides. Scanning electron microscopy (SEM) images clearly confirm the sorption of MS2 on Mg-Al LDH surfaces.

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Methane Oxidation in Agricultural Soils: A Comparison Between Conventional and Organic Cropping Systems. (A05-you113349-Poster)

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Abstract:
Methane oxidation in soils is a small but significant sink of atmospheric methane; previous work has shown oxidation to be lower in agricultural than in native forest or prairie soils. We examined methane oxidation in two corn-soybean-wheatsand, whereas MS2 breakthrough with a steady outflow concentration (C/C0 = 0.86) occurred after 5 pore volumes with sands without oxides. Scanning electron microscopy (SEM) images clearly confirm the sorption of MS2 on Mg-Al LDH surfaces.

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