Availability of Soil-Clay Surfaces for Organic Contaminant Sorption. (S09-charles160852-Poster)

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Abstract:

Many studies have reported the ability of clays to sorb certain organic chemicals depending on the nature of both the chemical and the clay. However, these studies often utilize pure clays so that extrapolation of results to the soil environment is difficult. In nature, organic and/or inorganic substances coat soil clays, hence the availability of clay surfaces for sorbing organic chemicals may be reduced. This study investigated the extent of such an effect. Organic matter-free Iowa Webster soil and the soil clay fraction were obtained and saturated with K+. The extent of sorption of nitrocyanobenzene (NCB) by these components was compared to that by whole soil. The clay and, to a lesser extent, the organic fraction in whole soil were determined to be the soil components significant to the sorption of NCB. The sum of the sorption of NCB to these isolated soil components was greater than its sorption to whole soil. These results suggest that the availability of clay surfaces for NCB sorption was reduced by their association with organic matter.

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