Phenanthrene Sorption in Chemically Modified Humic Acids. (S02-xing122950-Oral)

Authors:

- A.S.Gunasekara* University of Massachusetts, Amherst, MA
- M.J.Salloum The Ohio State University, Columbus, OH
- B.Xing University of Massachusetts, Amherst, MA

Abstract:

Several studies have shown that organic matter in soil (SOM) has a strong affinity for hydrophobic organic compounds (HOCs). Such findings have led to the proposal that SOM and its fractions are the primary absorbent of organic contaminants in soils. However, specific sorption processes of HOCs by the important SOM fraction, humic acid (HA), are not completely understood because the structure of HA is unknown. In this study, predetermined chemical groups were isolated from the HA samples using different chemical treatments. Nonlinear and competitive sorption (between phenanthrene and pyrene) in chemically treated and untreated humic acid from different parent sources was observed. The findings suggest that HA consist of multiple sorption domains having unique binding site energies for HOCs. The results are in agreement with recently proposed multi-mechanistic sorption models such as the dual-mode sorption model.

Corresponding	Author	Information:
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Baoshan Xing	phone: (413) 545-5212
University of	fax: (413) 545-3958
Massachusetts, Amherst, MA	e-mail:
Plant and Soil Sciences	agunasekara@pssci.umass.edu
Department, UMass	
Amherst, MA 01003	

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