Boron Adsorption by Corn Cell Walls. (S02goldberg141945-Oral)

Authors:

- S.Goldberg USDA-ARS, Riverside, CA
- C.M.Grieve USDA-ARS, Riverside, CA

Abstract:

Boron adsorption by cell walls isolated from corn (Zea mays) roots was investigated as a function of solution pH and ionic strength. Adsorption increased with increasing solution pH from pH 4.5-10, exhibited an adsorption maximum at pH 10-10.5, and decreased with increases in pH above 10.5. Boron adsorption increased with increasing solution ionic strength indicating the formation of strong inner-sphere surface complexes. A surface complexation model, the constant capacitance model was well able to describe the B adsorption data, optimizing two B surface complexes and the dissociation constant for the surface functional group, XOH. The large absolute value of the dissociation constant is consistent with phenolic functional groups.

Corresponding Author Information:	
Sabine Goldberg	phone: 909-369-4820
USDA-ARS	fax: 909-342-4962
450 W. Big Springs	e-mail:
Road	sgoldberg@ussl.ars.usda.gov
Riverside, CA 92507	

Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 8:45 am

Keywords:

Surface complexation, inner-sphere complex, phenolic functional group, modeling