**240 - Role of iron plaques in immobilizing arsenic in the rice-root environment**

***Cecily E Moyer***[1], *cmoyer@udel.edu, Ryan Tappero*[2], *Harsh Bais*[1], *Donald L Sparks*[1]. *(1) Department of Plant and Soil Sciences, University of Delaware, Newark, DE 19716, United States, (2) National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY 11973, United States*

Arsenic (As) is geogenic in parts of India and Bangladesh, making millions of people ill. Arsenic enters the rice plant via root absorption, and is transported to the edible grains, which are consumed by people. Researchers found that iron plaques, consisting of amorphous iron oxides, form on the surfaces of these roots. These iron plaques sorb As, essentially immobilizing the toxin, preventing it from absorption into the plant body. Observational studies have been conducted on iron plaques, but their characterization and association with As are only beginning to be studied. The goal of this study is to elucidate the sorption mechanism and capacity of As onto the iron oxide. Thus far we found the majority of As to be As(V) and also that the molar ratio of sorbed Fe:As does not significantly depend on the Fe-concentration of the nutrient solution. This signifies a molecular ordering of the plaque.

**Wednesday, August 22, 2012 06:00 PM**
Environmental Chemistry of Fe-Oxides and Fe-Hydroxides (06:00 PM - 08:00 PM)
**Location: Pennsylvania Convention Center**
**Room: Hall D**



Close Window