Reduced Biodegradation of Benzonitrile in Soil Containing Particulate Matter from Crop Residue Burns. (S11-sheng143205-Poster)

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Abstract:

Incorporation of particulate matter (ash) from crop residue burns into soils may impact bioavailability of organic contaminants in soils and limit completed bioremediation of contaminated soils. The biodegradation of benzonitrile in soil containing ash from wheat residue burns was studied using two different organisms previously isolated from a soil. Bioavailability assays using inoculated adsorbent slurries were conducted and both liquid- and sorbed-phase benzonitrile concentrations were measured over time. While the biodegradation patterns were different between the two strains, the mixing into soil of wheat ash significantly decreased bioavailability of benzonitrile to the both strains. The biodegradation rates of benzonitrile in soil containing 1% wheat ash were similar to those in pure wheat ash. Reduced biodegradation of benzonitrile is attributed to strong adsorption by wheat ash.

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