# Sorptive Characteristics of Particulate Matter in Soils from Crop Residue Burns. (S11-sheng161557-Poster)

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## Abstract:

Crop residues are commonly burned in the field in parts of the United States; the resulting ashes (particulate matter) are directly incorporated into soil. The impact of ashes in soil on pesticide fate has not been explored. We characterized ashes arising from the burns of rice and wheat residues in terms of their sorptive properties. Ashes strongly sorbed diuron, bromoxynil and ametryn, and hence, once incorporated into soil, significantly enhanced the overall sorptive ability of soil. pH-dependent sorption of bromoxynil and ametryn indicated the sorptive preference of ashes for pesticides in their neutral species. Aging of ashes in soil under the environmentally relevant conditions indicated a sustained sorptive ability of ashes. Repeated washes of ashes by HF solution to remove Si-fraction resulted in a C-enriched fraction and dramatically enhanced sorption of diuron, indicating that the C-fraction in the ashes is primarily responsible for pesticide sorption. These results suggest that ashes may play an important role in controlling pesticide behavior in soil.

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