Environmental Science Graduate Program Seminar Series

Remediation of Lead (Pb)-Contaminated Sites through the Application of Biochar Amendments

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Smith Laboratory, Room 3150

Abstract

Heavy metals, such as lead (Pb), are a common source of contamination within our soils. The incidental ingestion of contaminated soil is the leading risk-driver for Pb exposure for humans. Many studies have shown biochar can reduce heavy metal phytoavailability, but limited studies have reported the ability of biochar to reduce Pb availability associated with incidental ingestion (e.g., bioaccessibility). The objective of this project is to determine the efficacy of the in-situ remediation of Pb-contaminated soils using biochar treatments to reduce invitro Pb bioaccessibility (IVBA Pb). Soils from two contaminated sites, an urban lot in Cleveland and a smelter site in Pennsylvania, and three biochar amendments, prepared from switch grass, poultry litter and biosolids pyrolyzed at 900°C, were evaluated for this study. Biochar amendments were integrated with the contaminated soils in pots and incubated in a greenhouse for 12 weeks. Soil samples collected at three timepoints (week 4, 8 and 12) during the incubation period will be further assessed so that changes in the soils' physical and chemical properties may be monitored.