



**Martina Laura Vázquez Miranda**

**September 18, 2020 | 2:00-3:00 PM**

Zoom Meeting ID: 989 2470 8162

<https://osu.zoom.us/j/98924708162?pwd=VFF1WWNwOGFGd2kzZWN3RXQ0Z09uQT09>

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Cost-effective Soil Amendments for In Situ Remediation of Pb Contaminated Soil

Abstract

Lead speciation in soil is key for bioavailability assessment and exposure risk to humans from Pb contaminated soils. Soil ingestion is the main exposure pathway in this scenario and in vitro bioaccesibility assays (IVBA) can predict relative bioavailable (RBA) lead in soil by mimicking the GI tract conditions without traditional expensive animal feeding studies.

In situ soil remediation has been considered an effective ecological treatment option to ex-situ techniques. Often called “gentle” remediation, the use of amendments has been given significant attention in their capacity to decrease bioavailable Pb in soils.

Inexpensive locally available soil amendments included biosolids, compost, wood-ash, biochar, soluble phosphate and different combinations of these amendments were applied to a Pb contaminated soil. Amended soil was incubated for 6 months, with constant temperature, moisture and humidity conditions. Samples were taken after 1, 4 and 6 months.  Soil samples were analyzed for total metal content, bioaccesible lead (IVBA Pb), organic carbon content, pH, extractable phosphorous and other key properties to determine the best treatment to reduce bioavailability of lead while improving soil health.

Preliminary results indicate soluble phosphate is the best amendment for reducing bioaccesible lead. Moreover, combined amendments of soluble phosphate and organic C, such as biosolids and compost, seem to show reduction in bioaccesible lead as well as improving soil health and fertility.

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