The Effect of Soil Properties on Bioaccessibility of As, Pb, Cr, and Zn in Soils. (S02-li134525-Poster)

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Abstract:

Heavy metals in general impose a threat to environmental quality. Arsenic, chromium, lead, and zinc in particular are classified as 'priority pollutants', exerting a threat to ecosystem or human health. Ingestion of contaminated soils is a primary mechanism of exposure for children, the fraction of the population most at risk. However, contaminants must dissociate from the solid in order to be bioavailable-a bioaccessible fraction. In soil systems, there are several factors such as soil pH, soil texture, organic matter content, Fe, and Mn levels affecting the bioaccessibility of these elements. While the partitioning of metals has received appreciable attention, only limited information is available on their bioaccessibility-especially with regards to soil factors controlling bioaccessibility. The objectives of this study were therefore to discern the soil factors controlling the bioaccessibility of As, Cr, Pb, and Zn. We studied the impacts of soil pH, CEC, OM content, Fe and Mn levels, and clay content on the bioaccessibility of As, Cr, Pb, and Zn. Eleven soils collected from different regions in USA were used. Soil pH showed great impact on Zn but not on others.

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