## Effect of Microbial Activity, pH and Matrix of the Porous Media on the Trace Elements released from anaerobically digested Sewage Sludge. (A05-qureshi205935-Oral)

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- Abstract:

Despite strong adsorption of trace metal to soils, significant leaching of sludge borne metals has been observed. Our objective was to determine effects of microbial vs induced acidification on release of trace metals and their readsorption in the presence of sand. Columns were prepared consisting of sludge, acidified or limed sludge, mixed with glass beads. To test readsorption effects, glass beads in top and/or support bed were replaced by calcareous sand. The columns were incubated at 28C for 7.3 days followed by 8 hours leaching with artificial rain at 0.25 cm/hr. Eight incubation-leaching cycles were run. Metal leaching was low from treatments where sand was placed as top or bottom layer. For other treatments, Cu, Zn, and Ni were significantly more leachable. In sludge and acidified sludge, 90% Zn and 64-80 % Ni was lost in the leachate. Application of lime reduced leaching of heavy metals but increased leaching of Mo. Of the total applied Mo 36% was recovered in leachate from limed sludge. In summary our results show that pH, matrix of media and microbial activity play an important role in release and leaching of trace metals but trace metals can be re-adsorbed in the presence of adsorption matrix such as in calcareous sandy soils.

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