Distribution and Bioavailability of Heavy Metals in Soil-Plant System by Successive Application of Municipal Sewage Sludge and Pig Manure Compost in Korea. (S11-kwon005039-Poster)

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Abstract:

Sequential extraction of heavy metals introduced into the soil during 4 years application of municipal sewage sludge and pig manure compost in Korea, and their availability to radish plants were studied. Not only the total content of metals in the soil but also the hydrochloric acid extractable content was increased by application rates of sludge and compost. Total Cd, Cr, Cu, Ni, Pb, and Zn were sequentially fractionated into water soluble, exchangeable, organically bound, carbonate associated, and sulfide/residual fractions. Dominant chemical form of Cd, Cr, Ni, Pb, and Zn in both of soils amended sludge and compost was sulfide/residual fraction, although Cu was organically bound. As the amounts of sludge and compost application were increased, sulfide/residual form of Zn was decreased whereas exchangeable form in soils amended with sludge and carbonate form with compost were increased, respectively. Several statistically significant correlations between metal content in radish plants and soil fractions were also found.

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