

Distributioun of different forms of some heavy metals in Sandy Soil treated with Sewage Sludge

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ABSTRACT

A Laboratory experiment was conducted to study the distribution and accumulation of Fe, Mn, Zn and Cu throughout sandy soil columns amended with different rates of sewage sludge. The application of sludge resulted in a marked increase in the total amount of studied micronutrients. Maximum concentrations of metals were found in the surface 5 cm of the soil at a sludge rate of 6 % where Fe > Mn > Zn > Cu. Most movement and amount of metals recovered from soil were predominantly limited to a depth of 15, 20 and 25 cm for Fe ; Mn; Zn, and Cu, respectively. At lower depth of soil, values of total micronutrients became equal to those of the initial soil sample. The water-soluble fraction of metals was relatively small comparing to the total soil content. The extractable fraction of organically bond Cu was high compared to the other elements. The availability of such metals as measured by DTPA extraction followed the same pattern exhibited by their total amounts. Data revealed that the bulk of added metals accumulated in the surface soil depths. As, 96 % Fe, Mn, or Zn and 80 % Cu, of corresponding total DTPA extractable metals from the surface 15 cm soil.

Key Words: Sandy Soil, Sewage Sludge, heavy metals, Movement, accumulation

sludge – amended soil: Anime-year study. Soil Sci: 143:124-131.