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Influence of sewage sludge and organic composts on different soils under incubation periods: I. Zinc and copper releases

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Abstract : This incubation experiment was conducted to evaluated the effect of different rates of sewage sludge (11, 22 and 44 ton fed^{-1}) alone or in combination with three rates of banana Compost (BC) and/or cotton compost (CC) on release of extractable Zn and Cu from two different soils during incubation period up to 15 months.
The obtained results can be summarized in the following:
- Extractable Zn and Cu gradually increased with increasing the incubation period up to the end of 15 months.
- The DTPA-extractable Zn and Cu under all the incubated organic manure treatments were remarkably higher than those obtained by control treatment. These results are true for Abou-Rawash sandy soil and El-Nobaria sandy calcareous soil as well as the incubation periods.
- The incorporation of the $SS_{44}BC_{22}$ or $SS_{44}CC_{22}$ treatments in both soils at the different incubation periods significantly increased Zn and Cu under study when they compared with $SS_{22}BC_{22}$ or $SS_{22}CC_{22}$ treatments as well as $SS_{11}BC_{22}$ or $SS_{11}CC_{22}$ respectively.
- The extractable heavy metals at the end of the experiment (after 15 month) in Abou-Rawash and El-Nobaria soils ranged from 8.07 - 13.78, and from 8.50 - 11.68 ppm for extractable Zn, from 1.70 - 4.51, and from 1.92 - 4.60 ppm for Cu, respectively.
- It has been found that the incubation of SS and organic composts to agricultural land increased the release of DTPA- extractable of Zn and Cu in Abou-Rawash sandy soil than those in El-Nobaria sandy calcareous soil.
Key words : Sewage sludge- Banana compost- cotton compost- Zinc- Copper- Heavy metals.

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