

Niphaphorn Suwan 2006: Effects of Compost and Chemical Fertilizer Application on Uptake and Accumulation of Heavy Metals in Baby Corn Grown on Kamphaeng Saen Soil Series. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Mr. Suthep Thongpae, Ph.D. 103 pages.
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The effects of compost and chemical fertilizer application on the uptake and accumulation of Heavy Metals on Baby Corn (pacific 283 var.) was conducted on Kamphaeng Saen soil series in pot experiment at Department of Soil Science, Kasetsart university during June, 2005 to April, 2006. The experimental design was 3×3 Factorial in Completely Randomized Design with 4 replications. Treatments consisted of 2 main factors. The first factor was the application of compost at the rates 0, 75 and 150 g/8 kg soil. The second factor was the application of chemical fertilizer at the rates 0, 8 g of 15-15-15 plus 4 g of 46-0-0 per 8 kg soil applied at planting date, 8 g of 15-15-15 plus 4 g of 46-0-0 per 8 kg soil applied 2 times (half at planting date and 20 days after emergence).

The results showed that the treatments with compost gave higher total uptake of cadmium than the treatment without compost significantly. Application of compost at the rate 75 g/8 kg soil provided higher total uptake of cadmium than that of compost at the rate 150 g/8 kg soil significantly. The application of compost gave no different total uptake of lead but lower than the treatment without compost significantly. With and without compost provided no different total uptake of mercury and arsenic. For the application of chemical fertilizer, the treatments with the application once at planting date gave higher total uptake of cadmium, lead, mercury and arsenic than the others significantly. As compare the concentration of heavy metals in baby corn ear and baby corn plant, the results showed that the concentration of lead, cadmium and mercury in corn ear were higher than that in corn plant. In the other hand, the concentration of arsenic in corn plant was higher than that in corn ear. To compare the concentration of heavy metals to standard of acceptable contamination level of heavy metals in Law of Food and Drugs Administration, Ministry of Public Health of Thailand (0.8 mg Cd, 1 mg Pb, 0.02 mg Hg and 2 mg As/kg), the results showed that the concentration of cadmium in corn ear, lead in corn plant and corn ear, mercury in corn plant and corn ear were higher than the standard whereas the others were lower than the standard.

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