Piyaporn Wansom 2006: Effects of Compost and Chemical Fertilizer Application on the Uptake and Accumulation of Heavy Metals in Sweet Corn Grown on Muak Lek Soil Series. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Mr. Suthep Thongpae, Ph.D. 134 pages.
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Effects of compost and chemical fertilizer application on the uptake and accumulation of heavy metals in plant and grain of sweet corn (ATS-5 var.) grown on Muak Lek soil series were studied at department of Soil Science, Kasetsart University, Bangkhen campus. Pot experiment was conducted based on a 3×2 factorial in Completely Randomized Design with 3 replications. The first factor was the compost rate: 0, 75 and 150 g/8 kg of soil. The second factor was the chemical fertilizer (4 g of 15-15-15 fertilizer and 4 g of urea/8 kg of soil) applied once at planting date and applied 2 times (at planting and 20 days after emergence)

The results indicated that the concentration and total uptake of heavy metals (lead, cadmium, mercury and arsenic) in plant and grain were increased with the application of compost. For the application of chemical fertilizer gave no different concentrations of lead and cadmium in plant and grain and gave no different total uptake of lead, cadmium and mercury in the whole plant. The application 2 times of chemical fertilizers caused the mercury concentration in the plant to be lower than that once application. However, the application 2 times resulted in higher concentration of arsenic in plant and grain, and higher total uptake of arsenic than that once application. As compare the concentration of heavy metals in plant and grain, the result showed that the concentrations of lead and arsenic in plant were lower than that in grain but the concentrations of cadmium and mercury in plant were higher than that in grain. 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 (1 mg Pb, 0.08 mg Cd, 0.02 mg Hg and 2 mg As/kg), the result showed that the concentrations of lead and mercury in plant and grain were found to be higher than the standard but the concentrations of cadmium and arsenic in plant and grain were found to be lower than the standard.

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