

Amarita Kochaphakdee 2010: The Use of Activated Sludge from Beverage Production Plant as Fertilizer for Chinese Kale and Chinese Cabbage. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Assistant Professor Suthep Thongpae, Ph.D 101 pages.

The use of activated sludge from Beverage Production Plant as fertilizer was studied to investigate the effects on soil properties, yield and quality of two kinds of vegetable : Chinese Kale (*Brassica alboglabra*) and Chinese Cabbage (*Brassica pekinensis* Lour.). The study was divided into two experiments according to vegetables. Each experiment was conducted in Completely Randomized Design with 5 rates of activated sludge : 0, 1, 2, 4, and 6 tons/rai. The experiments were carried out at farmer's farm in Amphoe Sainoi, Nontaburi province during February to April 2009.

The results showed that the amount of N P and K in activated sludge were 4.11 2.24 and 0.50 % respectively and also for Cu Pb Cd Cr Hg and As were 84.0 101.7 5.60 103.5 2.28 and 0.90 mg/kg respectively. As compare to the content of heavy metal in standard organic fertilizer proposed by Department of Agriculture, the amount of Cd and Hg in activated sludge are rather higher than the standard. As for the application of activated sludge as fertilizer for Chinese Kale, the results showed that the application rate at 2 4 and 6 ton/rai gave no different in fresh weight yield but higher than the application at 1 ton/rai and control significantly. The application at 4 ton/rai tend to give the highest yield (1,612.7 kg/rai). Similar result was found in Chinese Cabbage, all application rates gave no different in fresh weight yield but higher than control highly significant, and also the application rate at 4 ton/rai tend to give the highest yield. As for risk assessment due to the contamination of heavy metal in vegetables, the results seem to show no effects. On the other hand the application of activated sludge resulted the increase of soil organic matter and also availability of plant nutrients except K. While the application of activated sludge tended to increase the amount of Hg in soil.

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Thesis Advisor's signature