Tawee Srisungngam 2012: Utilization of Suphan Buri Municipal Slaughterhouse Wastewater for Rice (*Oryza sativa* L.) Cultivation. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Sombun Techapinyawat, Ph.D. 107 pages.

Thailand is one of the countries which have suitable land for agriculture but still use chemical fertilizers for increasing the production. This research aims to use municipal slaughterhouse wastewater for increasing the growth of rice (*Oryza sativa* L. var. Pathumthani 1) compared with groundwater. The experiment used factorial in complete randomize designed (CRD). Round concrete ponds with diameter of 1 meter and 0.40 meter in depth contained paddy field soil of 0.25 meter height were used for rice cultivation. Two months seedlings with 9 plants per pond were transplanted into each pond. Different sources of water were added in different treatments every 15 days for 3 months in each pond. The result indicated that rice cultivation in municipal slaughterhouse wastewater at the percentage of 50 and 100 were grown better than using groundwater for height, number of shoots, seed dry weight per clump and the percentage of nitrogen, phosphorus and potassium in shoot, root and seed. The used of chemical fertilizer at the level of 10, 20 and 30 kilogram per rai enhanced growth of rice and the percentage of nitrogen, phosphorus and potassium in shoot, root and seed. However, the best growth and grain yield at 4 months (harvesting stage) were found in the used of municipal slaughterhouse wastewater at the percentage of 100 combination with chemical fertilizer at the level of 30 kilogram per rai by the average height was 83.38 centimeter, number of shoot was 28.63 plants, plant dry weight was 29.50 gram per clump and grain yield was 55.25 gram per clump. Thus, municipal slaughterhouse wastewater should be suitable for growing rice to promote rice growth and production with no harmful heavy metals contain in the seeds.

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