Saowaros Luangsoonton 2010: Growth and Wastewater Treatment of Sacred Lotus in Suphan Buri Municipal Slaughterhouse Wastewater. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Sombun Techapinyawat, Ph.D. 83 pages.

Aquatic plants can be used in a cost-effective manner to treat nutrient-rich water before releasing to freshwater ecosystems. Sacred lotus (*Nelumbo nucifera* Gaertn) can assimilate pollutants from wastewater in addition their ornamental and religious value. The objectives of this research were to compare growth of white and red lotus in ground water and in wastewater from Suphan Buri Municipal slaughterhouse, with the former serving as controls. Lotus seeds were planted in circular concrete pot, 1.0 m in diameter and 0.6 m in height. Paddy soil was added to the pot at 0.3 m dept and 4 lotus seedlings were planted in the pot filled with ground water. The experiment began after lotus plants were grown in the pot for eight weeks. Water was replaced every 15 days for 2 months. Both white and red lotus grew better in wastewater from the slaughterhouse than those grown in ground water. However, white lotus has higher growth than red lotus. After 16 weeks, dry and wet weight of white lotus leaves were 558.8 g/pot and 731.0 g/pot, respectively. In addition, white lotus has higher nitrogen in leaves and root of 1.27% and 1.26%, respectively than red lotus. White lotus was more effective in removing TKN (96.96%) and NH_4^+ (97.30%) at 10 weeks and BOD (89.77%) at 16 weeks than red lotus and the control treatments. Comparing to white lotus, red lotus was effective in removing TP (75.46%) at 12 weeks. At 16 weeks, red lotus effectively increased DO, three folds higher than that in the control. In summation, white lotus is effective in treating Slaughterhouse Wastewater with maximum efficiency at 16 weeks.

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