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KEY WORD : *MOINA MACROCOPA* / *CHLORELLA SP.* / SWINE  
WASTEWATER

RATANA ASAWASINSOPON: REMOVAL OF *CHLORELLA SP.* IN TREATED SYNTHETIC SWINE WASTEWATER BY *MOINA MACROCOPA*. THESIS ADVISORS: SIRANEE SREESAI, D.Tech.Sci., PRAYOON FONGSATITKUL, Ph.D., PAKORN SUMETHANURUGKUL, M.Sc., SHALASAI HUANGPRASERT, M.P.H., PRATANA SATITVIPAWEE, M.P.H. 131 p. ISBN 974-662-848-8

Efficiency of *Chlorella sp.* removal from treated swine wastewater using *Moina macrocopa* was evaluated. The experiment was carried out in 3 parts. In the first part, starting algal biomass concentration and starting number of *Moina macrocopa* were varied in order to determine suitable conditions to remove *Chlorella sp.* from treated synthetic swine wastewater within 2 days. For the second part, detention time for *Chlorella sp.* removal from treated synthetic swine wastewater was extended from 2 days to 5 days. In the third part, natural swine wastewater was treated with the experimental process and the results were compared to those of synthetic swine wastewater.

Using treated synthetic swine wastewater, efficiency of *Chlorella sp.* removal increased when the starting algal biomass concentration was increased from 100 mg/L to 260 mg/L. The highest efficiency occurred when *Chlorella sp.* concentration was one milligram per 12 organisms of *Moina macrocopa*. The efficiency did not change after varying the starting number of *Moina macrocopa* from 1,500 org./L to 3,000 org./L (P-value > 0.05). The removal efficiency dropped when detention time was longer than 2 days. Over-crowding condition occurred when *Chlorella sp.* concentration in the water was less than one milligram per 244 organisms of *Moina macrocopa*. The same result was obtained when natural swine wastewater was treated.

To improve characteristics of swine wastewater, it is recommended that a *Moina macrocopa* culturing system be incorporated into the final stage of the wastewater treatment process. Applying 300 g wet weight of *Moina macrocopa* for one cubic meter of wastewater which has dense algal biomass concentration (100 – 260 mg/L) yields both the highest removal efficiency of wastewater treatment and maximum *Moina macrocopa* production (840 g wet weight) within 2 days. The characteristics of treated swine effluent, including suspended solids, BOD, COD, TKN, and TP, were better than the industrial effluent standard.