



**Wastewater treatment for small-scale pig farm using anaerobic and aerobic system**

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**Abstract**

Water pollution due to pig farming in Thailand must be improved, specifically for the small-scale farm with a limited budget. This research was performed using an anaerobic system as well as an aerobic system for a small-scale farm. The objective of the study focused on the management of pollutants (i.e., dissolved organic matter) in terms of COD and TKN. The wastewater treatment consisted of two bioreactors: anaerobic bioreactor and aerobic bioreactor. Each reactor had a working volume of 25 L. A final clarifier with a working volume of 6 L was required in the aerobic treatment to settle the activated sludge before discharge of the treated effluent. The wastewater was fed into the system at the beginning rate of 10 L a day for 10 days. Subsequently, the feeding rate was rising to 20 L a day for 50 days. The results showed that COD (850 mg/L), BOD (175 mg/L), and TKN (70 mg/L) were substantially reduced in the aerobic system with the values of less than 200, 20 and 15 mg/L in the effluent, respectively. These were less than the regulated values. In conclusion, an anaerobic system followed by an aerobic system could properly treat some main pollutants (i.e., organic matter and nitrogen) of a small-scale swine farm with a relatively low investment and operating cost.

**Keywords:** Anaerobic; aerobic; small-scale pig farms; treatment system

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