

Thesis Title                   Treatability Study of Hospital Wastewaters  
Case Study : Siriraj Hospital

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Degree                         Master of Science  
(Appropriate Technology for Resource  
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#### ABSTRACT

A study of hospital wastewater characteristics was performed in this research. Also treatability of the wastewater was undertaken to determine the process performance. The 25 liter lab-scale activated sludge units was designed for the operation. Variation of food/microorganisms (F/m ratio) from 0.2-0.9 kg.BOD/kg.MLSS/day was made to observe the efficiency of BOD and COD reduction.

This research work classified wastewater into domestic type and chemical contaminated type. Composite sampling method was used.

Consideration of wastewater characteristics were conducted to treatability study, it was done by fixed MLSS concentration at 2000 mg/l and variation in flow rate of waste.

Experimental results were found that the total average BOD was 106 mg/l and COD was 146 mg/l. This gave the ratio of COD/BOD of 1.4. The average  $\text{NO}_3$  was 1.39 ppm. The range of alkalinity was between 12-590 ppm. The pH values covered the spectrum of neutral. The average SS was 635 mg/l and total residual chlorine was found in some periods of the day, it was between 80-100 ppm.

For treatability studies, the range of BOD reduction under 6 runs were between 41-65%, 45-70%, 48-63%, 34-60% 45-66% and 66-81%. For COD, the reductions were between 39-63%, 41-67%, 43-59%, 30-58%, 43-60% and 59-79% respectively.

Detention time was about 8 hours, the optimum operation for BOD reduction was about 90% at the range of F/M ratio 0.2-0.3 kg.BOD/kg. MLSS/day.