

Ampaiwan Pugprasead 2007: Treatment and Utilization of Secondary Treated Effluent from Pulp & Paper Industry in Land with Vegetation. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Chart Chiemchaisri, D.Eng. 89 pages.

The research was conducted to investigate organic matter removal in secondary treated effluent from pulp & paper Industry with BOD concentration of 4.5-7 mg/l, COD concentration of 108-135 mg/l and lignin concentration of 6.2-6.85 mg/l in land with vegetation at various hydraulic loading rates of 0.313, 0.626 and 1.25 cm./day. Two species of plants were used, i.e. *Eucalyptus camaldulensis Dehnh* and *Sporobolus virginicus* and compared with bare soil. The results showed that hydraulic loading rate of 0.313 cm/day gave highest organic matter removal efficiencies. When the hydraulic loading rate was increased, organic matter removal efficiencies were found decreasing. Average BOD, COD and lignin removal efficiencies in case of *Sporobolus virginicus* were 69.45%, 46.13% and 67.66% . The removal efficiencies in case of *Eucalyptus camaldulensis Dehnh* were 65.40%, 38.63% and 64.30% whereas those in bare soil case were 59.58%, 30.65% and 54.98% respectively. The percolated water were accounted for 44.15%, 37.01% and 59.42% of total loaded water in case of *Sporobolus virginicus*, *Eucalyptus camaldulensis Dehnh* and bare soil. *Eucalyptus camaldulensis Dehnh* and *Sporobolus virginicus* could grow well when the influent was increased and found that *Sporobolus virginicus* grew best during the first 30 day of experiment.

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Thesis Advisor's signature

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