

Sunwanee Jijai 2006: Wastewater Treatment of Fixed Film Microorganism on Nylon Rope Media by Anaerobic Filter. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Mr. Mongkol Damrongsri, Dr.Ing. 146 pages. ISBN 974-16-2661-4

The purpose of this research was to study the efficiency of wastewater treatment of fixed film microorganism on nylon rope media anaerobic filter comparing to upflow anaerobic to treat domestic wastewater. The upflow anaerobic reactor was made of acrylic plastic column of dimension 10 cm. height 100 cm. net volume 6.35 l, as well as anaerobic filter with nylon rope media the void volume of this reactor 96.85%. Nylon rope was used as media specific surface area was  $152.76 \text{ m}^2/\text{m}^3$ . The raw wastewater of average 200 mg/l COD was used two influent fed to control volumetric loading rate of 0.3, 0.5, 0.7 and 1.0 kg-COD/ $\text{m}^3$ -d were taste as main parameters of the comparing of reactors. To measuring the efficiency in term of BOD, COD and SS

The result at volumetric loading rate of 0.3, 0.5, 0.7 and 1.0 kg-COD/ $\text{m}^3$ -d anaerobic filter with nylon rope media reactor reduced the BOD, COD and suspended solids from 82.79 to 96.25% and 74.91 to 96.13% and 66.51 to 95.79% respectively. As well as upflow anaerobic reactor the removing 74.93 to 88.96% BOD and 69.06 to 88.32% COD and 44.47 to 91.04 % suspended solids. These figures indicated higher efficiencies of the anaerobic filter with nylon rope media than that upflow anaerobic reactor. The removal efficiencies were decreased by increasing of volumetric loading rate while the mass of biofilm were increased. At 0.3, 0.5 and 0.7 kg-COD/ $\text{m}^3$ -d effluent of BOD from two reactors less than effluent standard (20 mg/l). This study had not added any chemical into the domestic wastewater. Both of them can be reactive stably in high volumetric loading.

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