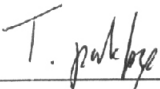
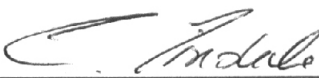


Pakkapong Thangchaipinyokul 2008: Comparison Study on Efficiency of Water Recycling System for Treat of Artificial Sea Aquarium. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Chatdanai Jiradecha, Ph.D. 94 pages.

Reference to the comparative experiment of the designated waste concentration of water samples showed that the "trickling system" filter performed the best ability in removing Ammonia, Nitrite and Nitrate with the removing time of 7 hours, 4 hours and 4 hours respectively. Following with the "skimmer system" filter, the total removing time was 9 hours. However, the algae tank showed the inability to do so within the time limit. And according to the experiment with the real environment in order to remove the waste products from test living found that number of Ammonia in trickling filter system, skimmer filter systems and algae are 0.096, 0.323, 0.216 mg/L respectively. Numbers of Nitrite are 0.032, 0.061 and 0.013 mg/L respectively. Numbers of Nitrate are 0.036, 0.161 and 0.126 mg/L respectively. Numbers of dissolved solid in total are 1275, 1298 and 1277 mg/L. PH rate in each tanks are 8.25, 8.12 and 8.24 respectively. Volume of remain water after experiment are 155.31, 151.96 and 157.61 L respectively. Therefore, the waste that was left after the maximum performance of filter in ticking system started to coagulate after day 16 of the experiment. The same result appeared in the other tanks from the day 2 to 4.

The experiment also showed difference numbers of surviving test living too. There was average 78% surviving rate in trickling filter system tank with the average increased body length of 0.46 c.m., which was 25% from the beginning size. The average increased body weight was 6.43 g., which was 178.86% from the beginning weight. The algae tank was the second best with the average surviving rate of 65%. The average increased body length of approximately 0.32 c.m., which was 17.4% from the beginning length. The average increased body weight was 8.2 g., which was 232.27% from the beginning weight. Considering algae tank performed the best in average increased body weight. The skimmer system filter tank performed the poorest surviving rate of only 33%. The average increased body length of 0.28 c.m. and average increased body weight of 4.34 g. This experiment showed that the trickling system filter had the best ability in removing fish waste products and performed the highest fish surviving rate.


Student's signature


Thesis Advisor's signature

23 / May / 2008