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TANTUS PIEKKOONTOD : THE UTILIZATION OF RENEWABLE MATERIALS FOR WATER FILTRATION IN AQUARIUMS. THESIS ADVISORS : SURA PATTANAKIATRA, M.Sc., CHALEE NAVANUKARA, Ph.D., 117 P.

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This study is about the potential use value of renewable materials such as oyster shell, clam shell , pottery and brick debris, as filter in aquariums and aquaculture with recirculatory system instead of using river gravel. The experimental design as a Randomized Completed Block Design, RCBD, using Multi-way Analysis of Variance and Duncan's Multiple Range Test, DMRT, for statistical analysis. The recirculatory systems were operated using oyster shell, clam shell , pottery , brick and river gravel as filtration media in each tank for 6 weeks. Water samples were collected for measuring pH , D.O. , alkalinity, and determination of Sulfate , Ammonia , Nitrite and Nitrate. The filtration media were measured by filtration volume, absorption capability and filtration efficiency.

The results showed that the properties of absorption value and filtration volume in different materials depended on there surface area and volume . More over, different materials with a different surface area and volume , which corresponded to the increased property of absorption value and filtration volume as follows: oyster shell, brick, pottery and clamshell were more efficient than river gravel thus resulting in reduction of the level of nitrogen - compound to lower than 0.025 mg/l in 4-6 weeks.