

Treatment of Greywater at Household by Using Ceramic Tablet Membranes

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Abstract : Greywater is any wastewater draining from a household including kitchen sinks and bathroom tubs, except toilet wastes. Although this used water may contain grease, food particles, hair, and any number of other impurities, it may still be suitable for reuse after treatment. Greywater reusing serves two purposes including reduction the amount of freshwater needed to supply a household, and reduction the amount of wastewater entering sewer systems. This study aims to investigate and design a simple and cheap unit to treat the greywater in household via using ceramic membranes and reuse it in supplying water for toilet flushing. The study include an experimental program for manufacturing several tablet ceramic membranes from clay and sawdust with three different mixtures. The productivity and efficiency of these ceramic membranes were investigated by chemical and physical tests for greywater before and after filtration through these membranes. Then a treatment unit from this ceramic membrane was designed based on the experimental results of lab tests. Results showed that increase sawdust percent with the mixture increase the flow rate and productivity of treated water but decrease in the same time the water quality. The efficiency of the new ceramic membrane reached 95%. The treatment unit save 0.3 m³/day water for toilet flushing without need to consume them from the fresh water supply network.

Keywords : ceramic membranes, filtration, greywater, wastewater treatment

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