

Surface Water Treatment By Custom-Made Mobile Water Treatment System, Jurnal Teknologi

Abstract

Advances in membrane technology have stimulated a growing interest in the development of mobile water treatment systems for rural areas lacking clean water access. This study explored the use of ultrafiltration hollow fibre (UF-HF) membranes as a filter medium in a mobile water system for surface water treatment. Prior to the surface water treatment operation, two types of UF-HF modules were prepared using different numbers of fibres (i.e. 15 and 30 fibres). By considering the effect of turbidity on the membrane permeate flux, it was found that the 30-fibre module performed with higher consistency than the module with 15 fibres within the same range of turbidity. It was observed that the specific permeate flux decreased gradually with operation time and that, simultaneously, specific permeate flux was governed by transmembrane pressure and feed water temperature. Consequently, the filtered water production was found to decrease with time. The UF-HF membrane module demonstrated good surface water treatment efficiency for a smaller-scale filter module