

ABSTRAK

Limbah cair tapioka merupakan salah satu limbah yang dapat menimbulkan pencemaran terhadap lingkungan perairan sehingga perlu diolah sebelum dibuang. *Multi Soil Layering* (MSL) dapat menjadi salah satu solusi dalam pengolahan limbah cair karena memiliki aktivitas mikroorganisme tinggi. Penelitian ini menggabungkan antara *Multi Soil Layering* dengan Filter Aerob dengan tujuan menentukan kecepatan pengisian optimum sistem dan mendapatkan efisiensi kerja sistem. Penentuan kecepatan pengisian optimum dan efisiensi Filter Aerob – MSL dilakukan melalui proses pengondisian, pengaliran dengan kecepatan 160, 320, 480, 640, dan 800 L m⁻² hari⁻¹, dan analisis BOD, COD dan TSS sedangkan untuk mendapatkan efisiensi kerja, sistem dialirkan selama 30 hari dan dianalisis BOD, COD dan TSS tiap 5 hari. Hasil menunjukkan bahwa sistem Filter Aerob – MSL mampu menurunkan nilai BOD, COD dan TSS paling optimum pada kecepatan pengisian 320 L m⁻² hari⁻¹. Efisiensi sistem dalam menurunkan nilai BOD, COD dan TSS masing masing sebesar 75,02%, 92,66% dan 77,75%.

Kata Kunci : Limbah Cair Tapioka, Filter Aerob-MSL, BOD, COD, TSS

ABSTRACT

Tapioca liquid waste is one of the wastes that can cause pollution to the aquatic environment so that it needs to be treated before being disposed of. Multi Soil Layering (MSL) can be one solution in the treatment of liquid waste because it has high microorganism activity. This study combines the Multi Soil Layering with Aerob Filter with the aim of determining the optimum filling speed of the system and obtaining the work efficiency of the system. Determination of the optimum filling speed and Aerob-MSL Filter efficiency is carried out through a conditioning process, flowing at speeds of 160, 320, 480, 640, and 800 L m⁻² days⁻¹, and analysis of BOD, COD and TSS while to get work efficiency, the system flowed for 30 days and analyzed BOD, COD and TSS every 5 days. The results show that the Aerob-MSL Filter system is able to reduce the optimum BOD, COD and TSS values at a charging speed of 320 L⁻² days⁻¹. System efficiency in reducing BOD, COD and TSS values were 75.02%, 92.66% and 77.75% respectively.

Keywords : Multi Soil Layering, Aerob Filter-MSL, BOD, COD, TSS