

ABSTRAK

Pengolahan limbah cair tahu telah dilakukan dengan metode filtrasi menggunakan membran selulosa bakterial yang terbuat dari *nata de bamboo*. Bambu merupakan salah satu tanaman kayu yang mengandung gula pada tunasnya (rebung) sehingga dapat digunakan untuk membuat selulosa bakterial. Pembuatan membran *nata de bamboo* dilakukan dengan cara membiakan starter *Acetobacter xylinum*, membuat *nata de bamboo* dengan proses fermentasi menggunakan bakteri *Acetobacter xylinum* dan memurnikan *nata de bamboo* hasil proses fermentasi. Karakterisasi membran meliputi berat jenis, kekuatan tarik, nilai fluks dan koefisien rejeksi. Proses filtrasi limbah cair tahu menggunakan tekanan sebesar 2 kgf/cm² dimana limbah cair tahu tersebut sudah dilakukan *pretreatment* melalui proses koagulasi dan flokulasi. Hasil penelitian menunjukkan bahwa kinerja membran *nata de bamboo* memiliki berat jenis sebesar 2,44 g/cm³, nilai kuat tarik sebesar 62,05 N/mm² dan persen elongasi sebesar 8,1%. Nilai fluks air sebesar 30,57 L/m².jam, fluks limbah cair tahu sebesar 4,58 L/m².jam dan fluks dekstran T-500 sebesar 27,82 L/m².jam serta nilai rejeksi membran sebesar 59,78%. Pengolahan limbah cair tahu dapat dilihat dari penurunan nilai BOD sebesar 93,99%, COD sebesar 90,35%, TSS sebesar 93,09% dan TDS sebesar 84,32%.

Kata kunci: filtrasi, limbah cair tahu, *nata de bamboo*, selulosa bakterial.



ABSTRACT

*Tofu wastewater treatment had been done by filtration method using bacterial cellulose membrane made from nata de bamboo. Bamboo is a woody plant that contains sugar in its shoots (bamboo shoots) so that it can be used to make bacterial cellulose. Nata de bamboo membrane preparation had been done by cultivating the *Acetobacter xylinum* starter, fermentation process using *Acetobacter xylinum* and purifying nata de bamboo from the fermentation process. Membrane performance includes density, tensile strength, flux value and coefficient of rejection. The filtration process of tofu wastewater using a pressure of 2 kgf/cm² where the tofu wastewater has been pretreatment by coagulation and flocculation process. The results showed that the characterization of nata de bamboo membrane had density was 2.44 g/cm³, tensile strength value was 62.05 N/mm² and percent elongation was 8.1%. Water flux value was 30.57 L/m².hour, tofu wastewater flux of 4.58 L/m².hour and dextran T-500 flux was 27.82 L/m².hour and rejection value was 59.78%. Tofu wastewater treatment can be decrease BOD value was 93.99%, COD was 90.35%, TSS was 93.09% and TDS was 84.32%.*

Keywords: *filtration, tofu wastewater, nata de bamboo, bacterial cellulose.*

