ABSTRAK

PERBANDINGAN EFISIENSI *WHEY* KEFIR DAN EKOENZIM DALAM PENURUNAN KADAR BOD DAN COD PADA LIMBAH CAIR INDUSTRI TAHU SECARA ANAEROB

Kandungan bahan organik pada limbah cair industri tahu cukup tinggi yang mengakibatkan kadar BOD dan COD pada limbah cair industri tahu besar. Oleh karena itu, diperlukan pengolahan limbah agar kadar BOD dan COD menurun dan dapat dibuang ke lingkungan tanpa merusak lingkungan dan biota dalam air. Pengolahan dilakukan menggunakan proses anaerob karena tepat untuk pengolahan limbah dengan beban organik tinggi dan dilakukan variasi penambahan yang bersumber dari *whey* kefir dan ekoenzim. Tujuan dari penelitian ini adalah untuk menganalisis efisiensi penambahan *whey* kefir dan ekoenzim pada proses anaerob dalam penurunan kadar BOD dan COD pada limbah cair industri tahu. Proses anaerob dilakukan menggunakan tangki anaerob dengan penambahan *bioball*, dilakukan dengan waktu kontak 72 jam. Kadar BOD dan COD ditentukan sebelum proses anaerob dan sesudah penambahan *whey* kefir dan ekoenzim. Hasil dari proses anaerob sebelum perlakuan didapatkan kadar BOD 2.920,85 mg/L dan COD 8.590,00 mg/L. Setelah perlakuan secara anaerob dan dilakukan penambahan *whey* kefir mengalami penurunan kadar BOD dan COD sebesar 48% dan menggunakan ekoenzim terjadi penurunan kadar BOD dan COD sebesar 40%. Berdasarkan hasil tersebut, dapat disimpulkan bahwa dengan penambahan *whey* kefir dan ekoenzim kurang efisien dalam menurunkan kadar BOD dan COD pada limbah cair industri tahu.

Kata Kunci : anaerob; BOD dan COD; ekoenzim; Limbah cair industri tahu; *whey* kefir.

ABSTRACT

Comparison The Effectiveness of Whey Kefir and Eco Enzyme in Reducing BOD and COD Levels in Tofu Industry Wastewater Using Anaerobic Treatment

The organic content in the wastewater from the tofu industry is quite high, resulting in high levels of BOD and COD in the wastewater. Furthemore, treatment is needed to reduce BOD and COD levels in wastewater from the tofu industry. The anaerobic process is chosen for treating high-organic-load waste, and there is variation in additives sorced from whey kefir and ecoenzymes. The aim of this research is to analyze the efficiency of whey kefir and eco enzyme in the anaerobic process for reducing the BOD and COD levels in wastewater from the tofu industry. The anaerobic process were conducted using an anaerobic tank with the addition of bioballs, and the contact time is 72 hours. The BOD and COD levels were determined before the anaerobic process and after the addition of whey kefir and ecco enzymes. The results of the anaerobic process before treatment showed BOD levels of 2,920.85 mg/L and COD levels of 8,590.00 mg/L. After anaerobic treatment an the addition of whey kefir, there was a descrease in BOD and COD levels by 48%, and using ecco enzyme resulted in a decrease of 40%. Based on these results, it can be concluded that the addition of whey kefir and eco enzyme is less efficient in reducing BOD and COD levels in liquid wasste from the tofu industry.

Keywords : anaerobic; BOD and COD; eco enzyme; Tofu Industry wastewater; whey kefir.