

ABSTRAK

Kementerian Kesehatan RI
Politeknik Kesehatan Kemenkes Surabaya
Jurusan Kesehatan Lingkungan
Program Studi Sanitasi Program Diploma Tiga Kampus Magetan
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Danis Adilla Rahma Evrillia

Perbedaan Kadar BOD Pengaruh Proses Aerasi Dalam Pengolahan Limbah Cair Industri Tahu

xvii + 63 Halaman + 10 tabel + 14 gambar + 7 lampiran

Limbah tahu merupakan produk sampingan dari berbagai proses pembuatan tahu. Air limbah yang mengandung bahan organik harus diolah terlebih dahulu sebelum dibuang ke badan air. Hasil uji pendahuluan kadar BOD pada limbah cair industri tahu milik Bapak Susiswo di Desa Kentangan, Kecamatan Sukomoro, Kabupaten Magetan sebesar 214 mg/l, hasil tersebut masih melebihi standar baku mutu Peraturan Gubernur Jawa Timur Nomor 72 Tahun 2013 tentang Baku Mutu Air Limbah Usaha dan/atau Kegiatan Kedelai. Tujuan penelitian ini adalah untuk mengetahui Perbedaan kadar BOD pengaruh proses aerasi dalam pengolahan limbah cair industri tahu. Jenis penelitian ini yaitu eksperimen semu (*quasi experiment*) dengan rancangan *one grup pre – posttest design* dan di analisis menggunakan Uji SPSS yaitu *Paired Sample Test*. Teknik pengambilan sampel yang digunakan yaitu *grab sampling* (sample sesaat) dengan pengulangan pengambilan sampel masing – masing sebanyak 16 kali dari sebelum dan setelah perlakuan waktu aerasi 35 jam.

Hasil penelitian ini diketahui bahwa rata – rata kadar BOD sebesar 234,75 mg/l sebelum perlakuan dan rata – rata kadar BOD sebesar 191,31 mg/l setelah perlakuan waktu aerasi 35 jam, dengan presentase penurunan 18,49%. Hasil tersebut masih belum efisien, menurut Marsono, Bowo Djoko didalam bukunya Teknik Pengolahan Air Limbah Secara Biologis yaitu efisiensi removal BOD sebesar 60 – 80%. Hasil Uji SPSS *Paired Samples Test* didapatkan nilai *sig (2-tailed) = 0,000 < 0,05 (α)* maka H_1 diterima, yang artinya Ada Perbedaan kadar BOD sebelum dan setelah Pengaruh proses aerasi dalam pengolahan limbah cair industri tahu.

Kesimpulan penelitian ini yaitu Ada Perbedaan penurunan kadar BOD sebesar 18,49% sebelum dan setelah Pengaruh proses aerasi dalam pengolahan limbah cair industri tahu. Saran untuk peneliti selanjutnya yaitu dengan menambah waktu aerasi dan diteliti secara deskriptif, dan dibandingkan dengan baku mutu.

Kata Kunci: Kadar BOD, Aerasi

ABSTRACT

Ministry of Health of the Republic of Indonesia
Health Polytechnic of the Ministry of Health Surabaya
Department of Environmental Health
Sanitation Study Program Diploma Three Program Magetan Campus
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Danis Adilla Rahma Evrillia

Differences in BOD Levels Influence of Aeration Process in Tofu Industrial Liquid Waste Treatment

xvii + 63 Pages + 10 tables + 14 images + 7 appendices

Tofu waste is a by-product of various tofu manufacturing processes. Wastewater containing organic matter must be treated first before being discharged into water bodies. The results of the preliminary test of BOD levels in Mr. Susiswo's tofu industrial liquid waste in Kentangan Village, Sukomoro District, Magetan Regency amounted to 214 mg/l, the results still exceeded the quality standards of the East Java Governor Regulation Number 72 of 2013 concerning Business Wastewater Quality Standards and/or Soybean Activities.. The purpose of this study is to find out the difference in BOD levels of the effect of the aeration process in the treatment of tofu industrial liquid waste. This type of research is a quasi-experiment with a one-group pre-posttest design and analyzed using the SPSS Test, namely the Paired Sample Test. The sampling technique used is grab sampling (instantaneous sample) with 16 repetitions of sampling each time before and after the treatment of 35 hours of aeration time.

The results of this study were found that the average BOD level was 234.75 mg/l before treatment and the average BOD level was 191.31 mg/l after 35 hours of aeration time treatment, with a decrease percentage of 18.49%. These results are still not efficient, according to Marsono, Bowo Djoko in his book Biological Wastewater Treatment Techniques, which is a BOD removal efficiency of 60-80%. The results of the SPSS Paired Samples Test obtained a sig value (2-tailed) = 0.000 < 0.05 (α) then the HI was accepted, which means that there is a difference in BOD levels before and after the effect of the aeration process in the treatment of industrial liquid waste.

The conclusion of this study is that there is a difference in the decrease in BOD levels by 18,49% before and after the influence of the aeration process in the treatment of tofu industrial liquid waste. The suggestion for the next researcher is to increase the aeration time and be researched descriptively, and compared with the quality standards.

Keywords: BOD Levels, Aeration