

PROCESSING USING AN *ANAEROBIC BIOFILTER* TO IMPROVE THE QUALITY OF COD, BOD, TSS, TDS AND pH LEVELS OF TEMPE MM INDUSTRIAL LIQUID WASTE BANTUL YOGYAKARTA DISTRICT

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ABSTRACT

Tempe industry is widely developed in the territory of Indonesia because generally with a small scale household industry using relatively cheap and fairly simple production technology, the process uses water from the initial stage to tempe packaging. The problem of tempeh industry waste is directly discharged into the river without prior treatment so that it can affect water quality. As a result, there is an unpleasant odor and environmental imbalance both physically, chemically and biologically from waters that receive daily waste loads from the tempe production process, river water is polluted and disturbs the life of organisms in the waters.

The purpose of this study was to treat the liquid waste of the tempe industry using *anaerobic biofilter* media tile fragments and ceramic fragments to repair COD, BOD, TSS, TDS and pH levels according to quality standards.

This type of research is a pseudo-experiment with the design "*Pre Test - Post Test With Control Group Design*".

The results of *anaerobic biofilter* treatment of tile media repair COD levels 35.60%, BOD 22.83%, TSS 38.21%, TDS 37.61% and pH 17.40%. Ceramic media *anaerobic biofilter* processing results repair COD levels 31.38%, BOD 2.33%, TSS 31.23%, TDS 35% and pH 13.64%.

The conclusion of this study is that processing using *anaerobic biofilter* media tile fragments and ceramics fragments can repair COD, BOD, TSS and pH levels of tempe liquid waste but not yet according to quality standards, but processing using *anaerobic biofilter* media tile fragments and ceramics fragments can repair TDS levels of tempeh liquid waste according to quality standards.

Keywords: *Anaerobic biofilter*, Tempe liquid waste, COD, BOD, TSS, TDS and pH.

**PENGOLAHAN MENGGUNAKAN *BIOFILTER ANAEROB* UNTUK
MEMPERBAIKI KUALITAS KADAR COD, BOD, TSS, TDS DAN pH
LIMBAH CAIR INDUSTRI TEMPE MM KABUPATEN BANTUL
YOGYAKARTA**

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INTISARI

Industri tempe banyak berkembang di wilayah Indonesia karena umumnya dengan skala kecil industri rumah tangga menggunakan teknologi produksi yang relatif murah dan cukup sederhana, prosesnya menggunakan air mulai dari tahap awal sampai pembungkusan tempe. Permasalahan limbah industri tempe langsung dibuang ke aliran sungai tanpa dilakukan pengolahan terlebih dahulu sehingga dapat mempengaruhi kualitas air. Akibatnya timbul bau yang tidak sedap dan ketidakseimbangan lingkungan baik fisik, kimia maupun biologis dari perairan yang setiap hari menerima beban limbah dari proses produksi tempe, air sungai tercemar dan mengganggu kehidupan organisme di perairan.

Tujuan dari penelitian ini untuk mengolah limbah cair industri tempe menggunakan *biofilter anaerob* media pecahan genteng dan pecahan keramik untuk memperbaiki kadar COD, BOD, TSS, TDS dan pH sesuai standar baku mutu.

Jenis penelitian ini eksperimen semu dengan desain “*Pre Test - Post Test With Control Group Design*”.

Hasil pengolahan *biofilter anaerob* media genteng perbaikan kadar COD 35,60%, BOD 22,83%, TSS 38,21%, TDS 37,61% dan pH 17,40%. Hasil pengolahan *biofilter anaerob* media keramik perbaikan kadar COD 31,38%, BOD 2,33% , TSS 31,23%, TDS 35% dan pH 13,64%.

Kesimpulan dari penelitian ini adalah pengolahan menggunakan *biofilter anaerob* media pecahan genteng dan keramik dapat memperbaiki kadar COD, BOD, TSS dan pH limbah cair tempe tetapi belum sesuai baku mutu, namun pengolahan menggunakan *biofilter anaerob* media pecahan genteng dan keramik dapat memperbaiki kadar TDS limbah cair tempe sesuai baku mutu.

Kata kunci : *Biofilter anaerob*, Limbah cair tempe, COD, BOD, TSS, TDS dan pH