

**REKAYASA ALAT FILTER PENGOLAHAN LIMBAH CAIR TAHU
DENGAN PENAMBAHAN DAUN BAMBU (*Bambusa Sp*)
DAN ARANG BAMBU UNTUK MENURUNKAN
KADAR TSS DAN BOD**

Ismy Putri Dwisukmana¹, Herman Santjoko², Ibnu Rois³
¹²³ Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta,
Jl. Tatabumi No. 3 Banyuraden, Gamping, Sleman
Email : ismyputrii2710@gmail.com, hermansantjoko@gmail.com,
ibnu.rois@poltekkesjogja.ac.id

INTISARI

Latar belakang : Home industri tahu di Indonesia dengan modal terbatas tidak memiliki sistem pengolahan IPAL dan limbah cair langsung dibuang ke sungai yang akan berdampak rusaknya ekosistem badan air dan menjadi sumber bibit penyakit. Menurut Peraturan daerah DIY No 7 Tahun 2016 tentang baku mutu kualitas limbah cair tahu kadar TSS dengan baku mutu 200 mg/l dan BOD 150 mg/l. Berdasarkan uji pendahuluan terhadap limbah cair tahu X memiliki kadar TSS 1004 mg/l dan BOD 3780 mg/l.

Tujuan : Penelitian ini untuk mengetahui pengaruh yang signifikan antara 3 perlakuan rekayasa alat filtrasi pengolahan limbah cair tahu dengan penambahan daun bambu (*Bambusa Sp*) dan arang bambu terhadap penurunan kadar TSS dan BOD.

Metode : Jenis penelitian yang dilakukan adalah *Quasi Experiment* dengan menggunakan desain penelitian *Pre Test Post Test with Control Group Design*. Sampel yang digunakan pada penelitian ini adalah limbah cair tahu X di Kalibayem. Analisis inferensial menggunakan *uji shapiro wilk*, *uji t-test* dan *uji one way anava*.

Hasil : Hasil penelitian ini adalah perlakuan 1 dengan menggunakan daun bambu 30 cm dan arang bambu 20 cm mampu menurunkan kadar TSS sebesar 69,81% dan kadar BOD 69,31 % lalu perlakuan 2 dengan menggunakan daun bambu 25 cm dan arang bambu 25 cm mampu menurunkan kadar TSS sebesar 61,33% dan kadar BOD 66,84 % dan perlakuan 3 dengan menggunakan daun bambu 20 cm dan arang bambu 30 cm mampu menurunkan kadar TSS sebesar 54,44 % dan kadar BOD 66,21 %. Hasil uji *one way anava* kadar TSS dan BOD yaitu nilai $\text{sig.} > 0,05$ artinya ada perbedaan yang signifikan antara 3 perlakuan filter.

Kesimpulan : Kesimpulan dari penelitian ini adalah perlakuan 1 yang paling tinggi dalam menurunkan kadar TSS 69,81% dan BOD 69,31%

Kata kunci : Limbah Cair Tahu, Daun Bambu Dan Arang Bambu

ENGINEERING FILTER FOR LIQUID TOFU WASTE TREATMENT WITH THE ADDITION OF BAMBOO LEAVES (*Bambusa Sp*) AND BAMBOO CHARCOAL ON DECREASING CONTENT

Ismy Putri Dwisukmana¹, Herman Santjoko², Ibnu Rois³
¹²³ Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta,
Jl. Tatabumi No. 3 Banyuraden, Gamping, Sleman
Email : ismyputrii2710@gmail.com , hermansantjoko@gmail.com,
ibnu.rois@poltekkesjogja.ac.id

ABSTRACT

Background : Tofu home industries in Indonesia with limited capital do not have an WWTP treatment system and the liquid waste is directly discharged into rivers which will damage the ecosystem of water bodies and become a source of disease germs. According to DIY regional regulation No. 7 of 2016 concerning quality standards for tofu liquid waste with TSS content with a quality standard of 200 mg/l and BOD of 150 mg/l. Based on preliminary tests on tofu liquid waste X has TSS levels of 1004 mg/l and BOD 3780 mg/l.

Purpose : This study was to determine the significant effect between 3 engineering treatments of tofu wastewater treatment filtration equipment with the addition of bamboo leaves (*Bambusa Sp*) and bamboo charcoal on the decrease in TSS and BOD levels.

Method : The type of research conducted was Quasi Experiment using the Pre Test Post Test with Control Group Design research design. The sample used in this research is tofu X wastewater in Kalibayem. Interferential analysis used *the Shapiro Wilk test, T-Test and One Way Anava test*.

Results : The results of this study were that treatment 1 using 30 cm bamboo leaves and 20 cm bamboo charcoal was able to reduce TSS levels by 69.81% and 69.31% BOD levels, then treatment 2 using 25 cm bamboo leaves and 25 cm bamboo charcoal was able to reduce levels TSS of 61.33% and BOD content of 66.84% and treatment 3 using 20 cm bamboo leaves and 30 cm of bamboo charcoal was able to reduce TSS levels by 54.44% and 66.21% BOD levels. The results of the one way anava test for TSS and BOD levels were Sig. > 0.05, meaning that there was a significant difference between the 3 filter treatments.

Consulusion : The conclusion of this study is that treatment 1 is the highest in reducing TSS levels 69.81% and 69.31% BOD

Keywords : Tofu Liquid Waste, Bamboo Leaves And Bamboo Charcoal