

EFEKTIFITAS PROSES PENGOLAHAN DENGAN TRICKLING FILTER DALAM
MENURUNKAN BOD₅ PADA LIMBAH TEMPE DI DESA BAKALAN KECAMATAN
TULIS KABUPATEN BATANG

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Industri rumah tangga tempe di Desa Bakalan Kecamatan Tulis Kabupaten Batang memproduksi tempe rata-rata setiap hari mencapai 60 kg kedelai. Hasil penelitian dosen FKM Universitas Diponegoro Semarang Tahun 2003 air limbahnya memiliki kadar BOD₅ antara 4.728,5mg/l - 10.797,2 mg/l, sementara kadar BOD₅ maksimum yang diperbolehkan untuk air limbah industri berdasarkan Keputusan Gubernur Kepada Daerah Tingkat I Jawa Tengah No. 660.I/02/1997 adalah 150 mg/l. Diperlukan suatu upaya pengolahan air limbah dalam kelangsungan produksi tempe yang sehat berkualitas dan mencegah pencemaran lingkungan. *Trickling filter* adalah suatu unit pengolahan air limbah individual secara biologis yang dapat menurunkan kandungan zat organik dan menurunkan kadar BOD₅. Nilai pH, suhu, lama kontak serta jumlah air limbah mempengaruhi kadar BOD₅. Penelitian bertujuan mengetahui penggunaan *Trickling filter* terhadap penurunan kadar BOD₅ air limbah tempe di Desa Bakalan Kecamatan Tulis Kabupaten Batang. Penelitian menggunakan metode *quasi experiment*. Variabel bebas dalam penelitian adalah lama kontak. Uji statistik menggunakan uji statistik parametric yaitu uji untuk dua sample berpasangan *Paired sample test*. Untuk menguji perbedaan kadar BOD₅ sebelum dan sesudah perlakuan. Hasil dari penelitian ini adalah rata-rata BOD₅ sebelum perlakuan 12.524 mg/l. disimpulkan ada perbedaan kadar BOD₅ air limbah tempe di desa Bakalan Kecamatan Tulis prosentase penurunan 23,99%, p value= 0,003<0,05 saran dari peneliti perlu membuat pengolahan *Trickling filter*.

Kata Kunci: Air limbah tempe, *Trickling filter*, BOD₅

*EFFECTIVITY OF WASTE WATER TREATMENT PROCESS OF TEMPE
INDUSTRY BY TRICKLING FILTER FOR THE BOD₅ IN BAKALAN
VILLAGE, TULIS SUBDISTRICT, ET BATANG DISTRICT*

The home industry of tempe at Bakalan village, Tulis, Batang produce tempe at average of 60 kg nuts every day. Evolution from Public Health Faculty Diponegoro Univesity Semarang in 2003 showed that the waste water of tempeproduction had BOD₅ between 4.728,5 mg/l - 10.797,2 mg/l, and the shold value for BOD₅ based on Governor Decision of Region Head of the First Level Central Java No. 660.I/02/1997 is 150 mg/l. To maintenance the public health quality and the preventing the environment from pollution, it is required a waste water treatment. Trickling Filter is one of the biological waste water treatment that can decrease organic matter organic and to low of BOD₅, pH value , Temperature, contract periode and effluent debit of waste water make low at BOD₅. The study was done by a quasi experimental method. Independend variable was Trickling Filter proccess and dependent variable was BOD₅. The confounding variables was contact periode which is controlled. Data was analized by parametric statistic (paired sample test). Treatment evaluation from this survey was the BOD₅ treatment 12.524 mg/l, after 9.512 mg/l. Evaluation are different quality BOD₅ tempe effluent water at Bakalan village Tulis Batang between before and after using trickling filter low prosentation 23.99% p value = 0,003 < 0,05. This research advises to construct processing between trickling filter.

Keyword : Tempe waste water, Trickling Filter, BOD₅