

ABSTRAK

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PERBEDAAN PENURUNAN KADAR COD(*CHEMICAL OXYGEN DEMAND*) DENGAN VARIASI WAKTU AERASI PADA LIMBAH CAIR HOME INDUSTRI BATIK

(xiv + 56 halaman + 11 tabel + 5 gambar + 7 lampiran)

Industri batik adalah salah satu industri yang perkembangannya semakin meningkat. Pewarnaan merupakan proses pembuatan batik yang menghasilkan limbah cair. Industri batik sariwarni limbah yang dihasilkan ditampung pada bak pertama, kolam oksidasi dan dibuang ke lingkungan (pekarangan sekitar) sehingga belum memenuhi syarat IPAL. Kadar COD yaitu 360 ml/l melebihi baku mutu 150 mg/l Permenlhk No.P.16 2019. Tujuan dari penelitian ini adalah mengetahui perbedaan penurunan kadar COD (*Chemical oxygen demand*) dengan variasi waktu aerasi pada limbah cair home industri batik.

Jenis penelitian ini adalah penelitian pra-eksperimen. Desain penelitian menggunakan *pretest posttest* dengan perlakuan aerasi menggunakan bubble aerator pada variasi 3 waktu kontak dan sebelum perlakuan yaitu : 0 jam (sebelum perlakuan), 1 jam, 2 jam dan 3 jam, masing-masing perlakuan dengan replikasi 6 kali. Teknik pengambilan sampel menggunakan metode sampel sesaat (*grab sample*). Data diolah dengan anova one way dan uji lanjut LSD (*least significant difference*).

Hasil uji anova bahwa nilai Sig(P Value) yaitu $0.000 < 0,05$ maka ada perbedaan penurunan kadar COD dengan variasi waktu aerasi secara signifikan dan dapat dilanjut uji LSD. Uji LSD menunjukkan nilai Sig(P Value) $0,000 < 0,05$ maka ada perbedaan penurunan kadar COD antara kelompok variasi waktu secara signifikan. Penurunan kadar COD setelah perlakuan aerasi selama 1 jam yaitu 66,5 ml/l (24,40%), selama 2 jam yaitu 118,2 ml/l (43,37%) dan selama 3 jam yaitu 148,7 ml/l (54,56%).

Berdasarkan hasil anova ada perbedaan secara signifikan, uji LSD ada beda secara signifikan dalam setiap perlakuannya. Penurunan kadar COD yang paling optimal yaitu waktu 3 jam. Disarankan bagi peneliti lanjut dapat meningkatkan waktu kontak aerasi dan dapat meneliti parameter lain yang melebihi standar baku mutu.

Kata kunci : Limbah batik, Aerasi, Bubble aerator, COD
Perpustakaan : 42(2013-2023)

ABSTRACT

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DIFFERENCE IN REDUCTION OF COD (CHEMICAL OXYGEN DEMAND) LEVELS WITH VARIATIONS IN AERATION TIME IN BATIK INDUSTRY HOME LIQUID WASTE

(xiv + 56 pages + 11 tables + 5 figures + 7 attachments)

The batik industry is one of the industries whose development is increasing. Dyeing is a batik making process that produces liquid waste. The waste produced by the Sariwarni batik industry is collected in the first tank, oxidation pond and disposed of into the environment (surrounding yards) so it does not meet the IPAL requirements. The COD level is 360ml/l, exceeding the quality standard of 150mg/l Permenlhk No.P.16 2019. The aim of this research is to determine the difference in reducing COD (Chemical oxygen demand) levels with variations in aeration time in batik home industry liquid waste.

This type of research is pre-experimental research. The research design used a pretest posttest with aeration treatment using a bubble aerator at a variation of 3 contact times and before treatment, namely: 0 hours (before treatment), 1 hour, 2 hours and 3 hours, each treatment with 6 replications. The sampling technique uses the momentary sample method (grab sample). The data was processed using one way Anova and LSD (least significant difference) further test.

The results of the anova test show that the Sig(P Value) value is $0.000 < 0.05$, so there is a significant difference in reducing COD levels with variations in aeration time and the LSD test can be continued. The LSD test shows a Sig(P Value) value of $0.000 < 0.05$, so there is a significant difference in the reduction in COD levels between the time variation groups. The decrease in COD levels after aeration treatment for 1 hour was 66.5 ml/l (24.40%), for 2 hours it was 118.2 ml/l (43.37%) and for 3 hours it was 148.7 ml/l (54.56%).

Based on the Anova results, there was a significant difference, the LSD test had a significant difference in each treatment. The most optimal reduction in COD levels is 3 hours. It is recommended that further researchers can increase the aeration contact time and examine other parameters that exceed quality standards.

Keywords : Batik waste, Aeration, Bubble aerator, COD
Libraries : 42(2013-2023)