

## ABSTRACT

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“UTILIZATION OF BIOADSORBEN MIXTURE OF COBS AND CORN HUSKS TO REDUCE BOD LEVELS IN BATIK LIQUID WASTE”

xiii+ 34 Pages+ 3 Tables+ 7 Images

Liquid waste from the batik industry often causes environmental problems, because it contains Biochemical Oxygen Demand (BOD) pollutants. One way of processing batik liquid waste to reduce BOD levels is by adsorption using activated carbon. Corn cobs and husks contain high cellulose which has the potential to be used as raw material for activated carbon. The purpose of this study was to analyze the bioadsorbent mixture of corn cobs and husks in reducing BOD levels in batik wastewater.

This type of research is a pre-experimental research design, namely One Group Pretest Posttest Design. The research object used batik wastewater treatment 3 times with a mixture of cobs and corn husks that had been activated using HCl for 24 hours. Variations in the mass of corn cobs and husks bioadsorbent with a ratio of (70:30), (60:40) and (50:50) contact time for 2.5 hours in 500 ml of batik liquid waste. Measurement of BOD levels was carried out after treatment. Data analysis in this study used the ANOVA test.

The highest percentage decrease in BOD levels after treatment was in the mass variation of 38 gr: 25 gr (60:40) 81.79% and the value of the decrease was 9243 mg/L. BOD levels before treatment using cob and corn husk bioadsorbent were 11300 mg/L and after treatment became 2057 mg/L, which means that there is 1 pair of variations in the mass of bioadsorbent mixture of cobs and corn husks in reducing the average different BOD content in batik wastewater.

Bioadsorbent mixture of cobs and corn husks was able to reduce BOD levels in batik wastewater. Suggestions for related industries to be able to use a mixture of cob and corn husk bioadsorbent to reduce BOD levels in batik liquid waste.

Keywords : Batik waste, BOD, Bioadsorbent mixture of cobs and corn husks  
Reading List : 7 Books (2002-2020)

## ABSTRAK

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### “PEMANFAATAN BIOADSORBEN CAMPURAN TONGKOL DAN KULIT JAGUNG UNTUK MENURUNKAN KADAR BOD PADA LIMBAH CAIR BATIK”

xiii+ 34 Halaman+ 3 Tabel+ 7 Gambar

Limbah cair dari hasil industri batik sering menimbulkan permasalahan lingkungan, karena terdapat kandungan pencemar *Biochemical Oxygen Demand* (BOD). Salah satu cara pengolahan limbah cair batik untuk menurunkan kadar BOD yaitu dengan adsorpsi menggunakan karbon aktif. Tongkol dan kulit jagung mengandung selulosa yang tinggi berpotensi menjadi bahan baku karbon aktif. Tujuan penelitian adalah untuk menganalisis bioadsorben campuran tongkol dan kulit jagung dalam menurunkan kadar BOD pada limbah cair batik

Jenis penelitian ini adalah rancangan pra-experimental, designs penelitian yaitu *One Group Pretest Posttest Design*. Objek penelitian yang digunakan limbah cair batik perlakuan sebanyak 3 kali dengan campuran tongkol dan kulit jagung yang telah diaktivasi menggunakan HCl selama 24 jam. Variasi massa bioadsorben campuran tongkol dan kulit jagung dengan perbandingan (70:30) , (60:40) dan (50:50) waktu kontak selama 2,5 jam dalam 500 ml limbah cair batik. Pengukuran kadar BOD dilakukan sesudah perlakuan. Analisis data dalam penelitian ini menggunakan uji anova.

Persentase penurunan kadar BOD setelah perlakuan tertinggi pada variasi massa 38 gr : 25 gr (60:40) 81,79% dan nilai penurunan sebesar 9243 mg/L. Kadar BOD sebelum perlakuan menggunakan bioadsorben campuran tongkol dan kulit jagung yaitu 11300 mg/L dan sesudah perlakuan menjadi 2057 mg/L yang berarti bahwa ada 1 pasang variasi massa bioadsorben campuran tongkol dan kulit jagung dalam menurunkan rata-rata kandungan BOD yang berbeda pada limbah cair batik

Bioadsorben campuran tongkol dan kulit jagung mampu menurunkan kadar BOD pada limbah cair batik. Saran bagi industri terkait agar dapat menggunakan bioadsorben campuran tongkol dan kulit jagung dalam menurunkan kadar BOD pada limbah cair batik.

**Kata Kunci** : Limbah Batik, BOD, Bioadsorben Campuran Tongkol dan Kulit Jagung

**Daftar Bacaan** : 7 Buku (2002-2020)