

ABSTRAK

PEMANFAATAN EKSTRAK BIJI TREMBESI (*SAMANEA SAMAN*) SEBAGAI KOAGULAN DALAM MENURUNKAN KADAR TSS, COD, DAN BOD PADA LIMBAH CAIR TAHU

xv + 49 Halaman + 14 Tabel + 5 Gambar + 6 Lampiran

Industri tahu merupakan salah satu penyebab timbulnya pencemaran air di Indonesia. Limbah cair tahu berasal dari air bekas rendaman kedelai dan air bekas pengukusan kedelai, yang masih dibuang langsung di perairan seperti sungai. Pengolahan alternative pada limbah cair tahu sebelum dibuang ke perairan perlu dilakukan agar mengurangi pencemaran air, salah satunya yaitu koagulasi-flokulasi dengan memanfaatkan bahan alami sebagai koagulan salah satunya yaitu Biji Trembesi (*Samanea saman*). Penelitian ini bertujuan untuk menganalisis biji trembesi (*Samanea saman*) sebagai koagulan dalam menurunkan kadar BOD, COD, dan TSS limbah cair di Home Industri Tahu dengan variasi dosis 50ml/L, 100ml/L, 150ml/L, dan 200ml/L.

Penelitian ini bersifat analitik menggunakan rancangan *Pretest-Posttest Only Control Group Design*. Objek Penelitian adalah limbah cair tahu dengan replikasi 6 kali. Data hasil kadar TSS, COD, dan BOD sebelum dan sesudah penambahan ekstrak biji trembesi dianalisis dengan menggunakan Pair T-Test dan One Way Anova.

Hasil penelitian inimenunjukkan kadar TSS, COD, dan BOD pada kelompok kontrol diperoleh hasil berturut-turut sebesar 530,6mg/L, 1023,34mg/L, dan 613,55mg/L. Setelah dilakukan pengolahan dengan menambahkan bahan koagulan ekstrak biji trembesi didapatkan kadar rata-rata TSS pada dosis 50ml, 100ml, 150ml, dan 200ml berturut-turut sebesar 326,2mg/L, 255,8mg/L, 120,6mg/L, dan 8mg/L. Pada kadar rata-rata COD sebesar 755,98mg/L, 598,38mg/L, 370,79mg/L, dan 209,26mg/L. Sedangkan kadar rata-rata BOD sebesar 431,92mg/L, 271,37mg/L, 170,71mg/L, dan 76,43mg/L. Hasil tersebut kemudian dilakukan uji One Way Anova untuk mengetahui dosis yang paling efisien untuk menurunkan kadar TSS, COD, dan BOD pada limbah cair tahu. Dari uji tersebut didapatkan hasil yaitu dosis 200ml adalah yang paling efisien untuk menurunkan kadar TSS sebesar 83,79%, COD sebesar 79,55%, dan BOD sebesar 87,54%. Sehingga penggunaan ekstrak biji trembesi dapat menurunkan kadar TSS, COD, dan BOD pada limbah cair tahu.

Biji trembesi dapat dimanfaatkan sebagai koagulan dalam menurunkan kadar TSS, COD, dan BOD pada limbah cair tahu. Bagi peneliti lain diharapkan dapat melakukan pemisahan lemak pada serbuk biji trembesi agar hasil pengolahan yang dilakukan lebih akurat dan juga peneliti lain diharapkan dapat mengimplementasikan manfaat dari ekstrak biji trembesi dalam lapangan secara continue.

Kata kunci :Limbah cair tahu, Koagulasi - Flokulasi, Bijitrembesi, BOD,COD, TSS

Daftar Bacaan : 20(jurnal dan buku) (1999 – 2019)

ABSTRACT

UTILIZATION OF TREMBESI SEED EXTRACT (SAMANEA SAMAN) AS A COAGULANT TO REDUCE TSS, COD, AND AGENCY CONTENTS IN LIQUID KNOW WASTE

xv + 49 Pages + 14 Images + 5 Tables + 6 Attachments

The tofu industry is one of the causes of water pollution in Indonesia. Tofu liquid waste comes from soybean soaking water and soybean steaming water, which is still discharged directly in waters such as rivers. Alternative treatment of tofu wastewater before being discharged into the water needs to be done in order to reduce water pollution, one of which is coagulation-flocculation by utilizing natural ingredients as coagulants, one of which is Trembesi seeds (*Samanea saman*). This study aims to analyze the seeds of tamarind (*Samanea saman*) as a coagulant in reducing levels of BOD, COD, and TSS of liquid waste in the Home Industry Tofu with varying doses of 50ml/L, 100ml/L, 150ml/L, and 200ml/L.

This research is analytic using Pretest-Posttest Only Control Group Design. The object of research is tofu liquid waste with replication 6 times. The data of TSS, COD, and BOD levels before and after the addition of tamarind seed extract were analyzed using Pair T-Test and One Way Anova.

The results of this study indicate the levels of TSS, COD, and BOD in the control group obtained successive results of 530.6 mg/L, 1023.34 mg/L, and 613.55 mg/L. After processing by adding the coagulant material extract of tamarind seed extracts obtained an average level of TSS at a dose of 50ml, 100ml, 150ml, and 200ml respectively 326.2 mg/L, 255.8 mg/L, 120.6 mg/L, and 8 mg/L. At an average COD level of 755.98 mg/L, 598.38 mg/L, 370.79 mg/L, and 209.26 mg/L. While the average BOD content was 431.92 mg/L, 271.37 mg/L, 170.71 mg/L, and 76.43 mg/L. These results are then conducted One Way Anova test to find out the most efficient dose to reduce levels of TSS, COD, and BOD in tofu liquid waste. From these tests the results were obtained that a 200ml dose was the most efficient way to reduce TSS levels by 83.79%, COD by 79.55%, and BOD by 87.54%. So that the use of tamarind seed extract can reduce levels of TSS, COD, and BOD in tofu liquid waste.

Tamarind seeds can be used as a coagulant in reducing levels of TSS, COD, and BOD in tofu liquid waste. Other researchers are expected to be able to separate the fat from the tamarind seed powder so that the results of the processing carried out are more accurate and also other researchers are expected to implement the benefits of tamarind seed extract in the field continuously.

Keywords : Tofu liquid waste, Coagulation - Flocculation, Tamarind seeds, BOD, COD, TSS

Reading List : 20 (journals and books) (1999 - 2019)