# ABSTRAK

## PEMANFAATAN BIJI SEMANGKA DAN BIJI LABU KUNING SEBAGAI BIOKOAGULAN ALAMI UNTUK MENURUNKAN TOTAL SUSPENDED SOLID DAN KEKERUHAN TERHADAP LIMBAH LAUNDRY

(Nesa Indira Dea Putri, 2026, 46 halaman, 4 tabel, 9 gambar, 5 lampiran)

Limbah cair laundry mengandung berbagai zat pencemar seperti surfaktan, fosfat, bahan organik, dan padatan tersuspensi yang dapat menurunkan kualitas lingkungan apabila dibuang tanpa pengolahan. Penelitian ini bertujuan untuk mengetahui efektivitas biokoagulan campuran biji semangka (*Citrullus lanatus*) dan biji labu kuning (*Cucurbita moschata*) dalam menurunkan parameter pencemar limbah laundry serta menentukan dosis optimum yang paling efektif. Penelitian dilakukan menggunakan metode eksperimen dengan proses koagulasi–flokulasi (*Jar Test*) menggunakan variasi dosis biokoagulan 100, 150, 200, 250, 300, dan 350 ppm. Parameter yang dianalisis meliputi pH, Total Suspended Solid (TSS), Total Dissolved Solid (TDS), Dissolved Oxygen (DO), dan kekeruhan. Hasil penelitian menunjukkan bahwa dosis 300 ppm merupakan dosis optimum dengan nilai kekeruhan 0,69 NTU, TSS 3,2 mg/L, dan TDS 791,4 mg/L. Nilai DO mengalami peningkatan dibandingkan kondisi awal, sedangkan nilai pH mengalami penurunan sehingga masih memerlukan proses netralisasi. Dengan demikian, biokoagulan campuran biji semangka dan biji labu kuning berpotensi digunakan sebagai alternatif koagulan alami yang ramah lingkungan dalam pengolahan limbah cair laundry.



**Kata kunci:** Biokoagulan, biji semangka, biji labu kuning, koagulasi–flokulasi, limbah laundry.

## *ABSTRACT*

## *THE UTILIZATION OF WATERMELON SEEDS AND PUMPKIN SEEDS AS NATURAL BIOCOAGULANTS TO REDUCE TOTAL SUSPENDED SOLIDS AND TURBIDITY IN LAUNDRY WASTEWATER*

*(Nesa Indira Dea Putri, 2026,46 pages, 4 tables,9 figures, 5 appendices)*

*Laundry wastewater contains various pollutants, such as surfactants, phosphates, organic matter, and suspended solids, which may degrade environmental quality if discharged without proper treatment. This study aimed to determine the effectiveness of a mixed biocoagulant derived from watermelon seeds (Citrullus lanatus) and pumpkin seeds (Cucurbita moschata) in reducing pollutant parameters in laundry wastewater and to determine the optimum dosage. An experimental method was employed using the coagulation–flocculation (Jar Test) process with biocoagulant dosages of 100, 150, 200, 250, 300, and 350 ppm. The parameters analyzed included pH, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Dissolved Oxygen (DO), and turbidity. The results showed that the optimum biocoagulant dosage was 300 ppm, producing a turbidity value of 0.69 NTU, TSS of 3.2 mg/L, and TDS of 791.4 mg/L. In addition, the DO value increased compared to the initial condition, while the pH decreased and therefore required a neutralization process to comply with wastewater quality standards. Based on these findings, the combination of watermelon seed and pumpkin seed biocoagulants has the potential to serve as an environmentally friendly natural coagulant for laundry wastewater treatment.*



***Keywords:*** *Biocoagulant, watermelon seeds, pumpkin seeds, coagulation–flocculation, laundry wastewater*.