

Amalia, D., 2019. Penurunan Nilai *Chemical Oxygen Demand* dan Fosfat Menggunakan Koagulan Biji Flamboyan (*Delonix regia*) pada Limbah Usaha *Laundry*. Skripsi ini di bawah bimbingan Drs. Agus Supriyanto, M.Kes., dan Nita Citrasari, S.Si., M.T., Program Studi S1 Teknik Lingkungan, Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Tujuan dari penelitian ini adalah untuk mengetahui beda signifikan antar variasi konsentrasi koagulan biji flamboyan terhadap persentase penurunan nilai COD dan fosfat pada limbah usaha *laundry*, dan konsentrasi optimum koagulan biji flamboyan terhadap persentase penurunan nilai COD dan fosfat pada limbah usaha *laundry*. Pengambilan sampel air limbah *laundry* dilakukan pada *outlet* usaha *laundry* “Mama” di Jalan Raya Sutorejo, Surabaya. Penelitian ini menggunakan metode koagulasi 100 rpm selama 1 menit, flokulasi 60 rpm selama 10 menit, dan sedimentasi selama 60 menit. Variasi konsentrasi koagulan biji flamboyan pada penelitian ini, yaitu 0 mg/L, 500 mg/L, 1500 mg/L, 2500 mg/L, dan 3500 mg/L. Analisis data pada penelitian ini menggunakan uji normalitas *One-Sample Kolmogrov-Smirnov*, uji homogenitas *Levene Test*, uji ANOVA *One-Way* untuk mengetahui ada beda, kemudian dilanjutkan uji Duncan untuk mengetahui ada beda signifikan. Hasil penelitian menunjukkan ada beda signifikan variasi konsentrasi koagulan biji flamboyan terhadap persentase penurunan nilai COD dan fosfat pada limbah usaha *laundry*. Hasil penelitian diperoleh konsentrasi optimum koagulan biji flamboyan pada persentase penurunan nilai COD dan fosfat, yaitu 2500 mg/L dengan persentase penurunan COD sebesar 46,50% dan fosfat sebesar 49,54%.

Kata kunci: Koagulan biji flamboyan, limbah *laundry*, konsentrasi optimum, COD, fosfat.

Amalia, D., 2019. *The Decrease of Chemical Oxygen Demand and Phosphate by Flamboyant Seeds (Delonix regia) Coagulant of Laundry Wastewater. This undergraduate thesis was supervised by Drs. Agus Supriyanto, M.Kes., and Nita Citrasari, S.Si., M.T., Environmental Engineering, Department of Biology, Faculty of Science and Technology, Universitas Airlangga.*

ABSTRACT

The aims of this research are to know the significant difference between concentration variation of Delonix regia seeds coagulant towards the decreasing percentages of COD and phosphate from laundry wastewater, and optimum concentration towards the decreasing percentages of COD and phosphate from laundry wastewater. The sample was taken at outlet of "Mama" laundry in Jalan Raya Sutorejo, Surabaya. This research method used coagulation 100 rpm for 1 minute, flocculation 60 rpm for 10 minutes and sedimentation for 60 minutes. Coagulant concentration variants in this research were 0 mg/L, 500 mg/L, 1500 mg/L, 2500 mg/L, and 3500 mg/L. Data analysis used normality test by One Sample Kolmogrov-Smirnov, homogeneity by Levene test, One-Way ANOVA is to know the difference, then continued with Duncan's test is to know the significant difference. The research result showed that there is significant difference between the concentration variations of Delonix regia seeds coagulant towards the decreasing percentage of COD and phosphate in laundry wastewater. The research result obtained the optimum concentration of Delonix regia seeds coagulant in decreasing COD and phosphate in laundry wastewater is 2500 mg/L, with the decreasing percentage of COD 46,50% and phosphate 49,54%.

Keywords: *Delonix regia seeds coagulant, laundry wastewater, optimum concentration, COD, phosphate.*