

Abstrak

EFEKTIFITAS SERBUK BIJI ASAM JAWA (*TAMARINDUS INDICA*) DALAM MENURUNKAN KADAR *CHEMICAL OXYGEN DEMAND (COD)* LIMBAH CAIR *LAUNDRY*

Ersylan Suciati Devi, Suratman, Agnes Fitria Widiyanto

Latar Belakang : Kandungan COD yang terdapat dalam limbah *laundry* dapat menyebabkan pencemaran air dan ekosistem dalam air mati karena kurangnya kadar oksigen dalam air. Protein dalam serbuk biji asam jawa (*Tamarindus indica*) merupakan protein bermuatan positif yang berperan sebagai koagulan polielektrolit sehingga dapat menurunkan kadar COD pada limbah cair *laundry*.

Metode : Penelitian menggunakan *True experimental* dengan desain *pre and post test with control group design* dengan rancangan acak lengkap. Populasi dalam penelitian ini di salah satu outlet limbah *laundry* yang ada di kelurahan Karangwangkal. Jenis perlakuan yang diberikan metode koagulasi, flokulasi serta sedimentasi menggunakan koagulan serbuk biji asam jawa (*Tamarindus indica*) dengan variasi dosis masing 1,5 gr/l, 2,0 gr/l, 2,5 gr/l, 3,0 gr/l, 3,5 gr/l pengulangan sebanyak 4 kali. Uji kadar COD menggunakan Spektrofometri, dan uji statistik menggunakan *Kruskall Wallis* dilanjutkan *Mann Whitney*.

Hasil : Perbedaan efektivitas variasi dosis serbuk biji asam jawa (*Tamarindus indica*) terhadap penurunan kadar COD pada kelompok perlakuan yaitu 1,5 gr/l 76,95%, 2,0 gr/l 76,68%, 2,5 gr/l 82,52%, 3,0 gr/l 87,49%, 3,5 gr/l 71,20%.

Simpulan : Koagulan serbuk biji asam jawa (*Tamarindus indica*) dengan dosis 3,0 gr/l paling efektif dalam menurunkan kadar COD limbah *laundry* dengan efektivitas 87,49%.

Kata Kunci : Serbuk Biji Asam Jawa (*Tamarindus indica*), COD, Limbah *laundry*.

Abstract

EFFECTIVENESS OF TAMARIND SEED POWDER (*TAMARINDUS INDICA*) IN REDUCING LEVELS OF CHEMICAL OXYGEN DEMAND (COD) FOR LAUNDRY LIQUID WASTE

Ersylan Suciati Devi, Suratman, Agnes Fitria Widiyanto

Background : COD which contained in laundry wastes caused water pollution and ecosystems are dead in water due to lack of oxygen levels in the water. Protein in tamarind seed powder is a positively charged protein that acts as a coagulant of polyelectrolytes which reduce COD levels in laundry liquid waste.

Method : The study used a *true experiment with pre and post-test design with a control group design* with complete random design. the population in this study is one of the laundry waste outlets in the Karangwangkal village. the type of treatment given the coagulation, flocculation and sedimentation methods using the coagulant of tamarind seed powder with varying doses of 1.5 gr / l, 2.0 gr / l, 2.5 gr / l, 3.0 gr / l, 3.5 gr / l repeat 4 times. the COD level test uses *spectrophotometry*, and the statistical test using *kruskal wallis* is continued by *mann whitney*.

Result : differences in the effectiveness of variations in the dose of tamarind seed powder on the reduction in COD levels in the treatment group 1,5 gr/l 76,95%; 2,0 gr/l 76,68%; 2,5 gr/l 82,52%; 3,0 gr/l 87,49%; 3,5 gr/l 71,20%.

Conclusion : Coagulant of tamarind seed powder with 3.0 gr/l is most effective in reducing the level of laundry COD with the effectiveness is 87,49%

Keyword : Tamarind Seed Powder (*Tamarindus indica*), COD, Laundry waste.