

**PENGARUH *ECO ENZYME* TERHADAP PENGOLAHAN
AIR LIMBAH DOMESTIK (HOTEL)**

Oleh

Ni Kadek Sioni Dwi Utami

NIM 2113081031

Program Studi Kimia

ABSTRAK

Eco enzyme merupakan salah satu cara biologi yang saat ini mulai dikembangkan dalam pengolahan limbah domestik. *Eco enzyme* yang digunakan dalam penelitian ini terbuat dari campuran buah jeruk dan nanas. Penelitian ini bertujuan untuk mengetahui karakteristik *eco enzyme* dari campuran buah jeruk dan nanas; pengaruh *eco enzyme* dalam pengolahan air limbah domestik (hotel) serta untuk mengetahui kualitas hasil perombakan limbah domestik menggunakan *eco enzyme* ditinjau pada parameter TDS, BOD, dan nitrat. Dalam penelitian ini dilakukan perombakan air limbah domestik menggunakan *eco enzyme* variasi pH 4-10 serta variasi ratio konsentrasi *eco enzyme* : limbah domestik yaitu 1:1, 1:2, 1:3, dan 1:4 dengan waktu kontak yaitu 3-7 hari. Hasil penelitian menunjukkan bahwa *eco enzyme* mengandung enzim amilase, lipase dan protease dengan aktivitas amilase (0,088 U/mL), lipase (0,4167 U/mL) dan protease (0,1197 U/mL). *Eco enzyme* memiliki pH asam (pH = 4) dengan nilai TDS 652 mg/L, BOD sebesar 46,5 mg/L, dan nitrat 1,0 mg/L. Perombakan air limbah hotel menggunakan *eco enzyme* berlangsung optimal pada pH 6 dengan konsentrasi 1:2 dan waktu kontak selama 5 hari dengan besarnya penurunan TDS, BOD dan nitrat secara berturut-turut 62%, 42% dan 87%. Hasil perombakan air limbah hotel menggunakan *eco enzyme* konsentrasi 1:2 pada pH optimum (pH=6) dengan waktu kontak 7 hari didapatkan hasil nilai TDS 47 mg/L, BOD 6 mg/L dan nitrat 0 mg/L, hasil perombakan ini sudah memenuhi baku mutu air limbah bagi usaha/atau kegiatan perhotelan berdasarkan Peraturan Gubernur Bali Nomor 16 Tahun 2016 tentang Baku Mutu Lingkungan Hidup.

Kata-kata kunci : limbah domestik, *eco enzyme*, perombakan

EFFECT OF ECO ENZYME ON TREATMENT DOMESTIC WASTE WATER (HOTEL)

By

Ni Kadek Sioni Dwi Utami

NIM 2113081031

Chemistry Study Program

ABSTRACT

Eco enzyme is one of the biological methods that is currently being developed in the treatment of domestic waste. The eco enzyme used in this study was made from a mixture of oranges and pineapples. This study aims to determine the characteristics of the eco enzyme from a mixture of oranges and pineapples; the influence of eco enzymes in domestic (hotel) wastewater treatment and to determine the quality of the reformation of domestic waste using eco enzymes in terms of TDS, BOD, and nitrate parameters. In this research, reformation of domestic wastewater was carried out using eco enzyme with a variation of pH 4-10 and variations in the ratio of eco enzyme concentration: domestic waste, namely 1:1, 1:2, 1:3, and 1:4 with a contact time of 3-7 days. The results showed that eco enzyme contained amylase, lipase and protease enzymes with amylase (0.088 U/mL), lipase (0.4167 U/mL) and protease (0.1197 U/mL) activities. Eco enzyme has an acidic pH (pH = 4) with a TDS value of 652 mg/L, BOD of 46.5 mg/L, and nitrate of 1.0 mg/L. The reformation of hotel wastewater using eco enzyme takes place optimally at pH 6 with a concentration of 1:2 and a contact time of 5 days with a magnitude of decrease in TDS, BOD and nitrate respectively 62%, 42% and 87%. The results of the overhaul of hotel wastewater using an eco enzyme concentration of 1:2 at optimum pH (pH=6) with a contact time of 7 days obtained TDS values of 47 mg/L, BOD 6 mg/L and nitrate 0 mg/L, the results of this decomposition were meet the waste water quality standards for hospitality businesses/or activities based on Bali Governor Regulation Number 16 of 2016 concerning Environmental Quality Standards.

Key words : domestic waste, eco enzyme, reform