

**Huruniawati, E., 2014, Produksi dan Karakterisasi Enzim Xilanase Dari Isolat Mikroba Xilanolitik Pendegradasi Sampah Organik, Skripsi di bawah bimbingan Dr. Purkan, S.Si, M.Si. dan Dr. Sri Sumarsih, M.Si., Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga**

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### ABSTRAK

Pentingnya enzim xilanase dalam dunia industri memerlukan perhatian khusus dalam pengembangan dan optimasi produksi enzim xilanase. Penelitian ini bertujuan untuk mengisolasi mikroba xilanolitik dari cairan fermentasi sampah organik, produksi, dan karakterisasi enzim xilanase. Isolasi mikroba xilanolitik dilakukan dengan metode *pour plate*. Uji aktivitas enzim xilanase dilakukan dengan metode DNS terhadap substrat *beechwood* xilan. Pada penelitian ini diperoleh 6 isolat bakteri xilanolitik. Isolat dengan indeks halo terbesar 4,07 merupakan spesies *Pseudomonas stutzeri*. Enzim dengan aktivitas xilanolitik optimum dapat diperoleh dengan inkubasi selama 27 jam dan kadar molase 0,5 % yang menghasilkan aktivitas 0,1227 U/mL. Karakteristik enzim xilanase optimum pada pH 5 dan suhu 50°C dengan aktivitas 0,0947 U/mL.

***Kata kunci:*** Bakteri xilanolitik, sampah organik, xilanase, molase, *Pseudomonas stutzeri*

**Huruniawati, E., 2014, Production and Characterization of Xylanase from Isolate Xylanolytic Microbe Degrading Organic Waste, This script is under advisement by Dr. Purkan, S.Si, M.Si. and Dr. Sri Sumarsih, M.Si., Department of Chemistry, Science and Technology Faculty, Airlangga State University, Surabaya.**

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### ABSTRACT

The importance of xylanase enzymes in industry requires special attention in the development and optimization of xylanase production. This research aimed to isolate xylanolytic microbe from liquid of fermentation organic waste, production, and characterization of xylanase. Isolation of xylanolytic microbe was done by *spread plate* method. Xylanase activity assay performed by DNS method with *beechwood* xylan as substrate. There are 6 isolates of xylanolytic bacteria. Isolate with the largest halo index of 4,07 indicated *Pseudomonas stutzeri* was obtained in this research. Optimum activity of xylanolytic enzyme can be obtained by incubation for 27 hour with 0,5 % molasses that produced the activity was 0,1227 U/mL. Characteristics of xylanase enzyme optimum at pH 5 and temperature 50°C with the activity was 0,0947 U/ mL.

**Keywords:** *Xylanolytic bacteria, organic waste, xylanase, molasses, Pseudomonas stutzeri*