

**ISOLASI DAN IDENTIFIKASI SERTA UJI AKTIVITAS ENZIM
ALKALIN PROTEASE JAMUR *Aspergillus* sp.
DARI LIMBAH PENYAMAKAN KULIT**

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INTISARI

Penelitian ini bertujuan untuk mengisolasi, dan mengidentifikasi *Aspergillus* sp. serta menguji aktivitas enzim alkalin protease dengan perlakuan perbedaan jamur dan pH. Perlakuan penelitian adalah menggunakan jamur *Aspergillus oryzae*, *Aspergillus sojae*, dan jamur *Aspergillus* sp., sedangkan media fermentasi yang digunakan dedak halus. Pengujian yang dilakukan meliputi pengamatan morfologi koloni, pengamatan morfologi sel, dan pengujian aktivitas proteolitik. Pengujian aktifitas proteolitik enzim alkalin protease menggunakan 2 macam pH yaitu pH 9 dan 10 untuk mengukur sejauh mana enzim alkalin protease dapat bekerja, sedangkan suhu yang digunakan adalah 40°C. Suhu ini merupakan suhu optimum untuk mengetahui aktivitas enzim alkalin protease. Data hasil uji karakteristik pH enzim alkalin protease yang dihasilkan dianalisis dengan analisis Pola Faktorial (2x3). Hasil yang diperoleh menunjukkan bahwa mikroorganisme dari limbah kulit memiliki ciri-ciri yang menyerupai Genus *Aspergillus*. Berdasarkan hasil penelitian menunjukkan rata-rata aktivitas enzim alkalin protease pada pH 9 untuk *Aspergillus* sp. adalah 238.690 $\mu\text{M/ml/menit}$ dan pada pH 10 sebesar 190.352 $\mu\text{M/ml/menit}$, aktivitas enzim untuk *Aspergillus sojae* pada pH 9 adalah 173.243 $\mu\text{M/ml/menit}$ dan pada pH 10 sebesar 149,896 $\mu\text{M/ml/menit}$, sedangkan untuk *Aspergillus oryzae* pada pH 9 adalah 180.890 $\mu\text{M/ml/menit}$ dan pada pH 10 sebesar 209.098 $\mu\text{M/ml/menit}$. pH mempengaruhi aktivitas enzim alkalin protease yang diproduksi oleh *Aspergillus* sp., *Aspergillus sojae*, dan *Aspergillus oryzae*.

Kata kunci : *Aspergillus* sp., Enzim alkalin protease, Aktifitas enzim, Dedak halus.

ISOLATION AND IDENTIFICATION AND TEST ACTIVITIES ALKALINE PROTEASE ENZYMES *Aspergillus* sp. FROM WASTE TANNING

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ABSTRACT

The purpose of the research are to isolate, to identify *Aspergillus* sp and to test the activity of alkaline protease enzyme on the waste from skin tannery process. *Aspergillus* sp. which is obtained from the waste of skin tannery process are isolated and cultivated on the wheat brand. There are three kind of fungi which are used for this research, they are *Aspergillus oryzae*, *Aspergillus sojae*, and *Aspergillus* sp. Colony morphology observation, cell morphology observation, and proteolytic activity testing of these three kind of fungi were performed on this research. We are using two different pH level (9 and 10) for testing the activity of protease alkaline enzyme and 40°C. This temperature is the optimum temperature for identifying the activity of protease alkaline enzyme. Data from the test characteristics of the alkaline pH of the protease enzyme produced was analyzed using Faktorial (2x3) method. The obtained results indicate that microorganisms from the waste of skin tannery process has characteristics that resemble the Genus of *Aspergillus*. The result based on this research show that the average value (on U/ml) of the protease alkaline enzyme are at pH 9 for *Aspergillus* sp. was 238.690 $\mu\text{M}/\text{ml}/\text{minute}$ and at pH 10 was 190.352 $\mu\text{M}/\text{ml}/\text{minute}$, for *Aspergillus sojae* enzyme activity at pH 9 was 173.243 $\mu\text{M}/\text{ml}/\text{minute}$ and at pH 10 was 149.896 $\mu\text{M}/\text{ml}/\text{minute}$, whereas for *Aspergillus oryzae* at pH 9 was 180.850 $\mu\text{M}/\text{ml}/\text{minute}$ and at pH 10 was 209.098 $\mu\text{M}/\text{ml}/\text{minute}$. From the result above we can conclude that pH-value can affect the activity of alkaline protease enzyme production of *Aspergillus* sp., *Aspergillus sojae*, and *Aspergillus oryzae*.

Key words : *Aspergillus* sp., Alkaline protease enzyme, Enzyme activity