

INTISARI

WULANDARI, N.A. 2021. ISOLASI, UJI AKTIVITAS DAN KONSENTRASI SUBSTRAT OPTIMUM EKSTRAK ENZIM AMILASE DAN PROTEASE DARI BAKTERI *Bacillus altitudinis*, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Enzim protease dan amilase banyak digunakan dalam makanan, farmasi dan industri kimia lainnya. *Bacillus altitudinis* diketahui mampu menghasilkan enzim amilase dan protease. Faktor utama yang mempengaruhi aktivitas enzim adalah konsentrasi substrat. Penelitian ini bertujuan untuk mengisolasi dan mengetahui aktivitas serta karakterisasi substrat sebagai penghasil enzim amilase dan protease tertinggi.

Bakteri *Bacillus altitudinis* diekstraksi setelah diketahui mampu memproduksi enzim amilase dan protease dari uji skrining aktivitas enzim secara kualitatif. Ekstrak kasar enzim diukur kadar proteinnya dengan metode *Lowry*. Pengujian aktivitas enzim amilase dilakukan dengan metode DNS pada konsentrasi substrat 1%, 1,25% dan 1,5% dan aktivitas enzim protease dengan metode *Bergmeyer* pada konsentrasi substrat 1%, 1,5% dan 2%.

Hasil penelitian menunjukkan bahwa isolat bakteri *Bacillus altitudinis* memiliki aktivitas enzim amilase dan protease. Karakterisasi substrat enzim paling tinggi yaitu pada konsentrasi pati 1,5% dengan aktivitas enzim amilase sebesar 0,0449 U/mL dan konsentrasi kasein 2% sebesar 0,8538 U/mL untuk aktivitas enzim protease.

Kata Kunci : Amilase, Protease, *Bacillus altitudinis*, Konsentrasi Substrat

ABSTRACT

WULANDARI, N.A. 2021. ISOLATION, TEST ACTIVITY AND CONCENTRATION OF OPTIMUM SUBSTRATE EXTRACTS OF AMYLASE AND PROTEASE ENZYMES FROM *Bacillus altitudinis* BACTERIA, ESSAY, FACULTY OF PHARMACY OF UNIVERSITY SETIA BUDI, SURAKARTA.

Protease and amylase enzymes have been widely used in the food, pharmaceutical, and other chemical industries. *Bacillus altitudinis* is known to produce amylase and protease enzymes. The main factor affecting enzyme activity is substrate concentration. This study aims to isolate and determine the activation and characterization of the substrate as the highest producer of amylase and protease enzymes.

Bacillus altitudinis extracted after that found that it could produce amylase and protease enzymes from a qualitative screening test of enzyme activity. This crude extract of the enzyme was measured, its protein content by the Lowry method. The amylase enzyme activity testing by the DNS method at 1%, 1.25%, and 1.5% substrate concentrations and the protease enzyme activity by the Bergmeyer method at 1%, 1.5%, and 2% substrate concentrations.

The results showed that the isolates of *Bacillus altitudinis* bacteria had amylase and protease enzyme activity. The highest enzyme-substrate characterization was at 1.5% starch concentration with amylase enzyme activity of 0.0449 U/mL and 2% casein concentration of 0.8538 U/mL for protease enzyme activity.

Keyword : Amylase, Protease, *Bacillus altitudinis*, Concentrate substrate