

LAILA AINUR ROFAH, NPM 210331100107. Karakterisasi Enzim Lipase dari Limbah Buah Mete (*Anacardium occidentale*). Dibawah bimbingan Cahyo Indarto, S. TP., M.P., Ph. D dan Rakhmawati, S. TP., M. T

ABSTRAK

Enzim lipase termasuk golongan enzim hidrolase yang berfungsi untuk menghidrolisis trigliserida menjadi gliserol dan asam lemak bebas. Buah mete memiliki kandungan flavonoid yang dapat meningkatkan aktivitas enzim lipoprotein lipase, sehingga mempercepat pemecahan trigliserida menjadi asam lemak dan gliserol melalui proses hidrolisis. Tujuan dari penelitian ini untuk mengkarakterisasi enzim lipase dari buah mete. Metode yang digunakan dalam penelitian ini yaitu Rancangan Acak Lengkap (RAL) faktor tunggal pada setiap tahap. Tahap 1 yang dilakukan yaitu dengan amonium sulfat 40% dan 60% dan dilanjutkan proses dialisis, (Tahap 2) yaitu pengujian substrat optimum (minyak sawit, kelapa, kedelai, dan jagung), (Tahap 3) uji suhu (30,40,50,60) dan penentuan kinetika enzim. Hasil penelitian menunjukkan ada perbedaan secara signifikan antar perlakuan. Hasil rendemen terbaik diperoleh pada kejenuhan amonium sulfat 60% sebesar $7.5233 \pm 0,17$ U/mL. Hasil aktivitas antara perbandingan amonium diperoleh aktivitas terbaik pada amonium 60% sebesar $14.9967 \pm 0,33$ U/mL. Penentuan substrat optimum untuk lipase buah mete yaitu minyak sawit dan suhu optimum didapatkan pada kisaran suhu 40-50°C. Perhitungan kinetika enzim didapat V_{maks} sebesar 0,03478 mmol/menit dan K_m sebesar 347,754 ppm.

Kata kunci: Aktivitas, Enzim Lipase, dan Mete.

LAILA AINUR ROFAH, NPM 210331100107. *Characterization of the Lipase Enzyme from Cashew Fruit (Anacardium occidentale).* Dibawah bimbingan Cahyo Indarto, S. TP., M.P., Ph. D dan Rakhmawati, S. TP., M. T

ABSTRAK

The lipase enzyme belongs to the hydrolase enzyme group which functions to hydrolyze triglycerides into glycerol and free fatty acids. Cashew fruit contains flavonoids which can increase the activity of the lipoprotein lipase enzyme, thus accelerating the breakdown of triglycerides into fatty acids and glycerol through the hydrolysis process. The aim of this research was to characterize the lipase enzyme from cashew fruit. The method used in this research is a single factor Completely Randomized Design (CRD) at each stage. Stage 1 was carried out with 40% and 60% ammonium sulfate and continued with the dialysis process, (Stage 2) namely testing the optimum substrate (palm oil, coconut, soybeans and corn), (Stage 3) temperature testing (30,40,50,60) and determining enzyme kinetics. The results showed that there were significant differences between treatments. The best yield results were obtained at 60% ammonium sulfate saturation of 7.5233 ± 0.17 U/mL. The activity results between ammonium comparisons obtained the best activity at 60% ammonium of 14.9967 ± 0.33 U/mL. Determination of the optimum substrate for cashew fruit lipase, namely palm oil and the optimum temperature was found in the temperature range of 40-50°C. Enzyme kinetics calculations showed that V_{max} was 0.03478 mmol/minute and K_m was 347.754 ppm.

Keywords: Activity, Lipase Enzyme, and Cashew.