

ABSTRAK

PENGARUH KOMBINASI INHIBITOR TERHADAP AKTIVITAS ENZIM LIPASE DARI BUAH SAWIT LEWAT MATANG (*OVER RIPE*)

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Enzim lipase rentan dan mudah rusak terhadap metanol karena senyawa tersebut merupakan inhibitor dan enzim lipase mudah rusak terhadap inhibitor. Penelitian ini bertujuan mengetahui pengaruh kombinasi inhibitor (metanol dan metil ester) terhadap aktivitas enzim lipase dari buah sawit lewat matang (*over ripe*). Penelitian ini menggunakan metode isolasi untuk mendapatkan ekstrak kasar enzim lipase dan titrasi asam basa untuk mengetahui seberapa besar aktivitas enzim dalam menghidrolisis lemak menjadi asam lemak bebas dan gliserol. Penelitian ini menggunakan metode Rancangan Acak Kelompok Lengkap (RAKL) dengan dua faktor yaitu metanol dan metil ester. Variasi konsentrasi inhibitor yang digunakan dalam penelitian ini yaitu metil ester (0%, 2%, 4%, 6%) (v/v) dan metanol (4%, 6%) (v/v). Penelitian ini dilakukan dengan menggunakan Rancangan Acak Kelompok Lengkap (RAKL) faktorial lalu dianalisis keragaman data dengan uji Bartlett, kemenambahan data diuji dengan uji Tuckey, dianalisis dengan sidik ragam untuk mendapatkan penduga ragam galat, dan diuji lanjut dengan polinomial ortogonal untuk melihat interaksi antar pelakuan. Hasil menunjukkan bahwa hanya metanol saja yang berpengaruh terhadap aktivitas enzim lipase, dimana penambahan metanol 4% masih aman bagi enzim lipase sedangkan metanol 6% dapat merusak enzim lipase.

Kata kunci: aktivitas enzim, buah sawit lewat matang, enzim lipase, dan inhibitor.

ABSTRACT

EFFECT OF INHIBITOR COMBINATION ON LIPASE ENZYME ACTIVITY FROM *OVER RIPE* PALM FRUITS

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Lipase enzymes are susceptible and easily damaged by methanol because the compound is an inhibitor, and lipase enzymes are easily damaged by inhibitors. This study aims to determine the effect of a combination of inhibitors (methanol and methyl ester) on the activity of lipase enzymes from ripe (*over ripe*) oil palm fruit. This research aimed to determine the effect of a combination of inhibitors (methanol and methyl ester) on the activity of lipase enzymes from overripe palm fruit. This research used an isolation method to obtain crude lipase enzyme extracts and acid-base titration to determine the extent of enzyme activity in hydrolyzing fats into free fatty acids and glycerol. This research used a Randomized Completed Block Design (RCBD) with two factors, namely methanol and methyl ester. The variations in inhibitor concentration used in this research were methyl ester (0%, 2%, 4%, 6%) (v/v) and methanol (4%, 6%) (v/v). This research was conducted using a factorial Completely Randomized Block Design (RAKL) and then analyzed the diversity of the data using the Bartlett test, the addition of data was tested using the Tuckey test, analyzed using analysis of variance to obtain an estimate of the error variance, and further tested using orthogonal polynomials to see the interaction between treatments. The results showed that only methanol affects lipase enzyme activity, where the addition of 4% methanol was still safe for lipase enzymes, while 6% methanol could damage lipase enzymes.

Keywords: enzyme activity, inhibitors, lipase enzyme, and overripe palm fruit.