

## **ABSTRAK**

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### **PEMANFAATAN ENZIM PROTEASE DAUN KELOR UNTUK MENINGKATKAN KANDUNGAN ASAM AMINO HIDROLISAT TEMPE SEMANGIT**

Skripsi, Fakultas Sains dan Teknologi (2020)

(xiv+ 81 halaman, 16 tabel, 14 gambar, 7 lampiran)

Adanya perlakuan waktu fermentasi yang lebih lama pada tempe semangit menyebabkan peningkatan kandungan asam amino pada tempe semangit. Penambahan enzim protease daun kelor pada tempe semangit akan menyebabkan terjadinya hidrolisis yang memberikan efek peningkatan kandungan asam amino. Pada penelitian ini, hidrolisat tempe semangit dibuat dengan menggunakan variasi waktu fermentasi tempe selama 2 hari, 3 hari, 4 hari, dan 5 hari serta penambahan konsentrasi enzim protease dari daun kelor sebanyak 0.1%, 0.15%, 0.2%, dan 0.25%. Parameter uji yang dilakukan meliputi uji aktivitas enzim, kadar protein, uji asam amino, kadar air, dan chroma. Hasil yang diperoleh menunjukkan bahwa hidrolisat tempe semangit dengan perlakuan waktu fermentasi selama 5 hari dan penambahan enzim sebesar 0.25% memiliki asam amino tertinggi serta kadar protein yang rendah. Uji warna menunjukkan adanya perbedaan yang signifikan pada nilai  $a^*$  dan  $b^*$  akibat perlakuan antar sampel hidrolisat. Nilai *lightness* hidrolisat tempe semangit 5 hari dengan penambahan 0.25% menunjukkan adanya perbedaan yang signifikan dengan sampel kontrol. Kadar air yang didapat pada penelitian ini belum sesuai dengan standar SNI. Enzim protease daun kelor yang telah dipurifikasi melalui tahapan dialisis mencapai kondisi optimumnya pada suhu 50°C dan pH 7.

Kata Kunci: aktivitas enzim, asam amino, daun kelor, hidrolisat tempe semangit, protease

Referensi: 117 (2007-2020)

## **ABSTRACT**

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### **UTILIZATION OF MORINGA OLEIFERA LEAVES PROTEASE ENZYMES TO ENHANCE OVERRIPE TEMPEH HYDROLYSATE AMINO ACID CONTENT**

Thesis, Faculty of Science and Technology (2020)

(xiv + 81 pages, 16 tables, 14 figures, 7 appendices)

Longer time of fermentation treatment in overripe tempeh causes an increase in amino acid content in overripe tempe. The addition of protease enzymes from *dial oleifera* leaves to overripe tempeh will cause protein hydrolysis that leads to an increase in amino acid content. In this study, hydrolysate from overripe tempeh was made with different fermentation time variation for 2 days, 3 days, 4 days and 5 days and the addition of protease enzyme from Moringa leaves with various concentrations (0.1%, 0.15%, 0.2%, and 0.25%). Several test conducted to get physical and chemical characteristics include enzyme activity test, protein content, amino acid test, water content, and chroma. The results obtained showed that the hydrolysate from overripe tempeh that have been fermented for 5 days with the addition of 0.25% *Moringa oleifera* leaves purified enzymes has the highest amino acids and low protein content. The color test showed a significant difference in the values of a \* and b \* due to the treatment between hydrolyzed samples. The value of lightness of overripe tempeh hydrolysate for with 5 days fermentation time and an addition of 0.25% enzymes indicates a significant difference with the control sample. The moisture content obtained in this study have greater value than SNI standards. *Moringa oleifera* leaves purified protease enzymes purified through the stages of dialysis reach their optimum conditions at 50°C and pH 7.

Keywords: amino acids, enzyme activity, moringa leaves, overripe tempeh hydrolysate, protease

References : 117 (2007 – 2020)