Daya Cerna Protein Tempe Koro Pedang Putih (Canavalia ensiformis (L.) DC.) Dengan Berbagai Metode
Pengasaman
Carissa Anindya Zahra, Dr. Fiametta Ayu Purwandari, S.T.P., M.Sc. ; Dr. Ir. Muhammad Nur Cahyanto, M.Sc.
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DAYA CERNA PROTEIN TEMPE KORO PEDANG PUTIH (*Canavalia ensiformis* (L.) DC.) DENGAN BERBAGAI METODE PENGASAMAN

INTISARI

Oleh :
CARISSA ANINDYA ZAHRA
22/498272/TP/13502

Kacang koro pedang putih (*Canavalia ensiformis* (L.) DC.) berpotensi sebagai sumber protein nabati alternatif, namun pemanfaatannya masih terbatas. Metode pengasaman sebelum fermentasi kapang diduga memengaruhi struktur protein dan kualitas tempe yang dihasilkan. Penelitian ini bertujuan mengevaluasi pengaruh metode pengasaman terhadap karakteristik fisik dan kimia selama fermentasi kapang serta daya cerna protein tempe koro pedang putih. Penelitian menggunakan tiga metode pengasaman, yaitu perendaman konvensional (RCM1), *backslopping* (RCM2), dan *direct acidification* (RCM3) menggunakan asam laktat. Parameter yang diamati meliputi perubahan pH, pertumbuhan miselium, warna, derajat hidrolisis fermentasi (%DHf), serta daya cerna protein *in vitro*. Hasil menunjukkan bahwa metode pengasaman berpengaruh signifikan terhadap pH dan %DHf, namun tidak berpengaruh signifikan terhadap daya cerna protein pada fase lambung, dan berpengaruh signifikan pada fase usus halus. Nilai %DHf tertinggi diperoleh pada RCM3, sedangkan daya cerna protein tertinggi pada fase usus halus diperoleh pada RCM1. Hal ini menunjukkan bahwa tingkat hidrolisis awal tidak selalu berbanding lurus dengan daya cerna protein, yang diduga dipengaruhi oleh perubahan struktur protein akibat pengasaman. Dengan demikian, metode pengasaman berperan penting dalam memengaruhi kondisi awal substrat dan dinamika fermentasi, yang berimplikasi pada kualitas protein tempe. Metode perendaman konvensional (RCM1) menghasilkan daya cerna protein terbaik.

Kata kunci : Daya cerna protein, tempe, koro pedang putih, pengasaman, derajat hidrolisis

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PROTEIN DIGESTIBILITY OF JACK BEAN TEMPEH (*Canavalia ensiformis* (L.) DC.) USING DIFFERENT ACIDIFICATION METHODS

ABSTRACT

By :

CARISSA ANINDYA ZAHRA

22/498272/TP/13502

Jack bean (*Canavalia ensiformis* (L.) DC.) has potential as an alternative plant-based protein source; however, its utilization remains limited. The acidification method applied prior to mold fermentation is presumed to influence protein structure and the quality of the resulting tempeh. This study aimed to evaluate the effect of different acidification methods on the physicochemical characteristics during mold fermentation and the protein digestibility of white jack bean tempeh. Three acidification methods were applied: conventional soaking (RCM1), backslopping (RCM2), and direct acidification (RCM3) using lactic acid. The observed parameters included pH changes, mycelial growth, color characteristics, degree of hydrolysis during fermentation (%DHf), and *in vitro* protein digestibility. The results showed that acidification methods significantly affected pH and %DHf, but had no significant effect on *in vitro* protein digestibility in the gastric phase, while a significant effect was observed in the intestinal phase.. The highest %DHf was obtained in RCM3, while the highest protein digestibility at the intestinal phase was observed in RCM1. These findings indicate that the initial degree of hydrolysis does not always correlate with protein digestibility, which is likely influenced by structural changes in proteins due to acidification. In conclusion, the acidification method plays an important role in determining the initial substrate condition and fermentation dynamics, which ultimately affect protein quality. Conventional soaking (RCM1) produced the highest protein digestibility among the treatments.

Keywords: Protein digestibility, tempeh, jack bean, acidification, degree of hydrolisis