

Abstrak

PROTEIN TOTAL, PROTEIN TERLARUT, DAN MUTU HEDONIK TEMPE BIJI KELOR (*Moringa oleifera*) DENGAN VARIASI LAMA FERMENTASI SEBAGAI ALTERNATIF PANGAN PENCEGAH STUNTING

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Latar Belakang: Stunting didefinisikan sebagai keadaan gagal tumbuh pada balita yang ditandai dengan tinggi badan lebih pendek dibandingkan usianya. Biji kelor dapat dimanfaatkan sebagai bahan dasar pembuatan tempe yang berpotensi menjadi alternatif pangan nabati tinggi protein untuk pencegahan stunting. Penelitian ini bertujuan untuk mengetahui pengaruh variasi lama fermentasi untuk menghasilkan tempe biji kelor terbaik berdasarkan kadar protein terlarut, protein total dan mutu hedonik.

Metode: Rancangan Acak Kelompok (RAK) Eksperimental Non-Faktorial dengan satu faktor lama fermentasi (0-96 jam). Analisis statistik kadar protein total dan protein terlarut dilakukan menggunakan uji ANOVA One Way, sedangkan mutu hedonik menggunakan uji *Friedman*. Apabila terdapat pengaruh nyata ($p < 0,05$), maka analisis data dilanjutkan dengan DMRT. Perlakuan terbaik dianalisis dengan uji indeks efektivitas De Garmo

Hasil: Tempe biji kelor dengan variasi lama fermentasi berpengaruh nyata terhadap kadar protein terlarut ($p < 0,001$), mutu hedonik warna, aroma, tingkat kesukaan keseluruhan ($p < 0,001$) dan penampilan ($p = 0,036$), akan tetapi tidak berpengaruh nyata terhadap kadar protein total ($p = 0,414$) dan mutu hedonik rasa ($p = 0,126$). Tempe biji kelor terbaik yaitu tempe dengan lama fermentasi 72 jam.

Kesimpulan : Tempe biji kelor fermentasi 72 jam memiliki kadar protein terlarut sebesar 3,81% bk, protein total 38,15% bk; kadar lemak total 49,37% bk; kadar abu 3,02% bk; kadar air 58,61% dan karbohidrat *by difference* 9,46% bk serta karakteristik sensori berupa mutu keseluruhan 3,78 (suka); rasa 3,64 (khas tempe); aroma 2,88 (cukup langu); warna 3,44 (putih) dan penampilan (kekompakan mieselia) 4,02 (kompak). Tempe biji kelor memiliki asam amino esensial yang lengkap.

Kata kunci : Tempe Biji Kelor; Lama Fermentasi; Stunting

Abstract

TOTAL PROTEIN, SOLUBLE PROTEIN, AND HEDONIC QUALITY OF MORINGA SEED TEMPEH (*Moringa oleifera*) WITH VARIATIONS IN FERMENTATION TIME AS AN ALTERNATIVE FOOD TO PREVENT STUNTING

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Background: Stunting is defined as a condition of growth failure in toddlers characterized by shorter height than their age. Moringa seeds can be used as a basic ingredient for making tempeh, which has the potential to be a high-protein plant-based food alternative for the prevention of stunting. This study aimed to determine the effect of fermentation time variation on producing the best moringa seed tempe based on soluble protein content, total protein and hedonic quality.

Method: Non-factorial experimental randomized block design with one factor of fermentation time (0-96 hours). Statistical analysis of total protein and soluble protein content was performed using a one-way ANOVA test, while hedonic quality was analyzed using the Friedman test. If there was a significant effect ($p < 0.05$), data analysis was continued with DMRT. The best treatment was analyzed using the De Garmo effectiveness index test.

Results: Tempeh made from moringa seeds with varying fermentation times had a significant effect on soluble protein content ($p < .001$), hedonic quality of color, aroma, overall liking ($p < .001$) and appearance ($p = 0.036$), but had no significant effect on total protein content ($p = 0.414$) and hedonic quality of taste ($p = 0.126$). The best moringa seed tempeh was produced with a fermentation period of 72 hours.

Conclusion: Fermented moringa seed tempeh for 72 hours has a soluble protein content of 3.81% db, total protein 38.15% db; total fat content 49.37% db; ash content 3.02% db; moisture content 58.61% and carbohydrates by difference 9.46% db and sensory characteristics including overall quality 3.78 (liked); taste 3.64 (typical tempeh); aroma 2.88 (slightly pungent); color 3.44 (white); and appearance (mycelium compactness) 4.02 (compact). Tempeh made from moringa seeds contains a complete set of essential amino acids.

Keywords: Tempeh from Moringa Seeds; Fermentation Time; Stunting