

KARAKTERISTIK FISIK, KIMIA, DAN SENSORIS MINUMAN SUMBER PROTEIN SIAP MINUM BERBASIS KACANG MERAH GERMINASI DAN ISOLAT PROTEIN KEDELAI

INTISARI

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Peningkatan tren gaya hidup sehat mendorong konsumsi produk pangan berbasis nabati sebagai alternatif sumber protein yang lebih sehat dan berkelanjutan. Namun, rata-rata konsumsi protein masyarakat Indonesia masih berada di bawah angka rekomendasi, sehingga diperlukan inovasi produk pangan tinggi protein yang praktis dan dapat diterima konsumen. Kacang merah sebagai bahan pangan lokal berpotensi menjadi sumber protein nabati yang keterbatasan kualitas gizinya dapat ditingkatkan dengan perlakuan germinasi dan penambahan Isolat Protein Kedelai (IPK).

Penelitian ini bertujuan untuk mengembangkan minuman sumber protein berbasis kacang merah germinasi serta mengevaluasi karakteristik gizi, fisik, dan sensorisnya. Produk diformulasikan dengan variasi kombinasi kacang merah germinasi dan penambahan IPK dengan rasio 1:0, 2:1, dan 1:2. Analisis yang dilakukan meliputi profil kimia (kadar air, abu, protein, lemak, dan karbohidrat), karakteristik fisik (viskositas, warna, kadar gula, dan kestabilan), serta analisis penerimaan konsumen dengan uji sensoris terhadap intensitas atribut dan uji afektif dengan jumlah panelis sebanyak 148 orang.

Hasil penelitian menunjukkan bahwa minuman yang dikembangkan memiliki kadar protein hingga 8,03% (%wb) yang mampu mencukupi hingga 20,08% kebutuhan protein harian. Nilai viskositas berkisar antara 44,33–285,20 cP, yang mengindikasikan bahwa penambahan IPK berpengaruh signifikan terhadap kekentalan produk. Berdasarkan analisis sensoris, seluruh formulasi dapat diterima secara hedonik dengan formulasi kontrol yang paling disukai namun nilainya tidak berbeda signifikan dengan sampel P1 dan P2. Hasil penelitian ini membuktikan perlakuan germinasi dan penambahan IPK mampu menghasilkan produk minuman sumber protein siap minum yang berpotensi untuk dikembangkan, namun tetap diperlukan optimasi terhadap formulasi produk serta eksplorasi perlakuan lain agar kualitas produk semakin meningkat.

Kata kunci: germinasi, isolat protein kedelai, kacang merah, minuman nabati, protein

PHYSICAL, CHEMICAL, AND SENSORY CHARACTERISTICS OF READY-TO-DRINK PROTEIN BEVERAGE FROM GERMINATED RED KIDNEY BEANS AND SOY PROTEIN ISOLATE

ABSTRACT

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The growing trend toward a healthy lifestyle has driven the consumption of plant-based food products as an alternative source of protein. However, the average protein intake of the Indonesian population remains below recommended levels, necessitating the development of practical, high-protein food products that are acceptable to consumers. Red kidney beans as a local food ingredient, have the potential to serve as a plant-based protein source and it is known that germination and the addition of soy protein isolate can improve their limited nutrient quality.

This study aims to develop a high-protein beverage based on germinated red kidney beans and to evaluate its nutritional, physical, and sensory characteristics. The product was formulated using various combinations of germinated red beans and added SPI, with ratios of 1:0, 2:1, and 1:2. The analyses conducted included chemical profiles (moisture, ash, protein, fat, and carbohydrate content), physical characteristics (viscosity, colour, sugar content, and stability), as well as consumer acceptance analysis using attribute intensity tests and affective tests with a panel of 148 participants.

The results of the study showed that the developed beverage had a protein content of up to 8.03%, which could meet up to 20.08% of daily protein requirements. Viscosity values ranged from 44.33 to 285.20 cP, indicating that the addition of IPK significantly affected the product's viscosity. Based on sensory analysis, it was found that all formulations were acceptable in hedonic, with the control formulation being the most preferred with its score that not significantly different from samples P1 and P2. The results of this study demonstrate that germination treatment and the addition of IPK can produce a ready-to-drink protein-based beverage with potential for further development. However, optimization of the product formulation and exploration of other treatments are still needed to improve product quality even more.

Keywords: germination, plant-based beverage, protein, red kidney beans, soy protein isolate