

ABSTRAK

FORMULASI SUSU KECAMBAH KORO PEDANG PUTIH, EKSTRAK JAHE, DAN SERAI TERHADAP KADAR SERAT KASAR, FENOLIK, DAN HEDONIK SEBAGAI MINUMAN ALTERNATIF PENDERITA DIABETES MELITUS TIPE 2

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Latar Belakang: Pengaturan makan yang baik dapat menstabilkan kadar glukosa darah pada tubuh sehingga penggunaan bahan alami seperti koro pedang putih, jahe gajah, dan serai dapat digunakan sebagai alternatif pangan bagi penderita Diabetes Melitus Tipe 2 (DMT2). Penelitian ini bertujuan untuk mengetahui kadar serat kasar, fenolik, daya terima hedonik, dan aktivitas antioksidan susu nabati yang dihasilkan.

Metode: Eksperimental dengan rancangan acak kelompok. Formulasi susu nabati terdiri dari F1 (persentase kecambah koro pedang putih terhadap air 10%; 10% jahe gajah; 12,5% serai), F2 (persentase kecambah koro pedang putih terhadap air 12,5%; 8% jahe gajah; 10% serai), F3 (persentase kecambah koro pedang putih terhadap air 16,67%; 6% jahe gajah; 7,5% serai). Jumlah pengulangan pada penelitian ini sebanyak 6 sehingga didapatkan 18 unit percobaan. Analisis statistik kadar serat kasar dan fenolik menggunakan ANOVA, sedangkan hedonik menggunakan uji Friedman. Apabila terdapat pengaruh nyata ($p < 0,05$), maka dilanjutkan dengan DMRT. Formula terbaik diperoleh menggunakan uji indeks efektivitas De Garmo.

Hasil: Formula susu nabati yang berbeda berpengaruh nyata ($p \text{ value} < 0,05$) terhadap kadar serat kasar, fenolik, daya terima hedonik berupa warna, aroma, dan kekentalan. Namun, tidak berpengaruh nyata ($p \text{ value} > 0,05$) terhadap daya terima hedonik rasa.

Kesimpulan: Susu nabati terbaik adalah susu nabati (F3) yang mengandung serat kasar $8,81\% \pm 1,04^a$, total fenolik $83,56 \pm 6,16^a$ mg GAE/L, skor uji hedonik warna (3,76), aroma (3,22), kekentalan (3,20), rasa (3,18), dan nilai inhibisi *Diphenylpicryl-Hydrazyl* (DPPH) sebesar 66,97% (tinggi). Serving size susu nabati sebanyak 230 mL dengan kandungan serat kasar 20,3 g dengan persen pemenuhan bagi penderita DMT2 101,5% dan kandungan fenolik yang dihasilkan adalah sebesar 192 mg GAE/L dengan persen pemenuhan bagi orang dewasa 19,4%.

Kata kunci: Susu Nabati, Kecambah Koro Pedang Putih, Jahe Gajah, Serai, Serat Kasar, Fenolik

ABSTRACT

FORMULATION OF GERMINATED JACK BEAN MILK, GINGER EXTRACT, AND LEMONGRASS ON CRUDE FIBER CONTENT, PHENOLIC COMPOUNDS, AND HEDONIC EVALUATION AS AN ALTERNATIVE BEVERAGE FOR TYPE 2 DIABETES MELLITUS PATIENTS

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Background: Proper dietary regulation can help stabilize blood glucose levels, making natural ingredients such as germinated jack bean, ginger, and lemongrass potential alternative food sources for individuals with Type 2 Diabetes Mellitus (T2DM). This study aims to evaluate the levels of crude fiber content, total phenolics, hedonic acceptability, and antioxidant activity of plant-based milk.

Method: Experimental with randomized group design. The plant-based milk formulations consisted of F1 (percentage of germinated jack bean to water 10%; 10%; ginger; 12,5% lemongrass), F2 (percentage of germinated jack bean to water 12,%; 8% ginger; 10% lemongrass), F3 (percentage of germinated jack bean to water 16,67; 6% ginger; 7,5% lemongrass). Each treatment was replicated 6 times, resulting in a total of 18 experimental units. Crude fiber and phenolic content were analyzed using ANOVA, while hedonic acceptability was assessed using the Friedman test. If a significant effect ($p < 0,05$) was observed, further analysis was conducted using Duncan's Multiple Range Test (DMRT). The most effective formulation was determined using the De Garmo effectiveness index

Results: The different plant-based milk formulations had a statistically significant effect ($p < 0,05$) on crude fiber content, total phenolic levels, and hedonic acceptability in terms of color, aroma, and viscosity. However, they did not have a significant effect ($p > 0,05$) on the hedonic acceptability of taste.

Conclusion: The best plant-based milk formulation is F3, which contains $8,81\% \pm 1,04^a$ crude fiber and $83,56 \pm 6,16^a$ mg GAE/L of total phenolics. It achieved hedonic test scores of color (3,76), aroma (3,22), viscosity (3,20), and taste (3,18). The Diphenylpicryl-Hydrazyl (DPPH) inhibition value was 66,97% (high). A 230 mL serving of this plant-based milk provides 20,3 g of crude fiber, fulfilling 101,5% of the daily fiber requirement for individuals with T2DM, and contains 192 mg GAE/L of phenolic compounds, fulfilling 19,4% of the daily phenolic intake recommendation for adults.

Keywords: Plant-Based Milk, Germinated Jack Bean, Ginger, Lemongrass, Crude Fiber, Phenolic