

ABSTRAK

Sondang Dhea Farrah. NIM: 5173240021. "Analisis Kandungan Gizi dan Aktivitas Antioksidan Cookies Substitusi Tepung Sorgum (*Sorghum bicolor*, L)". Skripsi. Program Studi Gizi. Jurusan Pendidikan Kesejahteraan Keluarga. Fakultas Teknik. Universitas Negeri Medan. 2022

Penelitian ini bertujuan untuk menganalisis: 1) Daya terima *cookies* substitusi tepung sorgum varietas bioguma pada persentase (50%, 70%, dan 90%); 2) Kandungan gizi *cookies* substitusi tepung sorgum varietas bioguma berupa kadar protein, karbohidrat, lemak; 3) Aktivitas antioksidan pada *cookies* substitusi tepung sorgum varietas bioguma. Penelitian eksperimen ini menggunakan metode RAL (Rancangan Acak Lengkap). Formulasi substitusi tepung sorgum pada 4 perlakuan yaitu T0 (kontrol), T1 (Substitusi 50%), T2 (Substitusi 70%), T3 (Substitusi 90%). Lokasi penelitian dilakukan di Universitas Negeri Medan, Balai Riset Standarisasi Industri Medan dan Laboratorium Farmasi USU dengan subjek penelitian berjumlah 30 orang. Teknik analisis data dilakukan secara deskriptif dan uji *one-way-anova Duncan*. *Cookies* terbaik yang dipilih berdasarkan uji ranking dianalisis dengan metode gravimetri dan titrimetri dan pada uji aktivitas antioksidan dianalisis dengan metode DPPH.

Berdasarkan hasil penelitian menunjukkan bahwa nilai rerata 4.55 formulasi kontrol, 4.34 formulasi 50 persen, 3.97 formulasi 70 persen, dan 3.70 formulasi 90 persen. Hasil formula terbaik yang diminati konsumen adalah formula *cookies* substitusi 50 persen tepung sorgum. Substitusi tepung sorgum berbeda sangat nyata terhadap tingkat perbedaan persepsi konsumen dilihat dari tingkat kesukaan *cookies* ($\alpha = 0.05$). Kandungan gizi *cookies* substitusi 50 persen tepung sorgum adalah karbohidrat sebesar (49.9%), protein sebesar (5.69%), lemak sebesar (25.2%) dan telah dinyatakan memenuhi syarat mutu *cookies* berdasarkan dengan SNI No. 2973-2011. Aktivitas antioksidan pada *cookies* substitusi 50 persen tepung sorgum sebesar 104.48 ppm dengan kategori sedang berdasarkan nilai IC50.



ABSTRACT

Sondang Dhea Farrah, NIM: 5173240021. "Analysis of Nutritional Content and Antioxidant Activity of Sorghum Flour Substitution Cookies (*Sorghum bicolor*, L)". Thesis. Nutrition Study Program. Family Welfare Education Department. Faculty of Engineering. State University of Medan.2022

This study aims to analyze: 1) Consumer acceptance of cookies substituted for bioguma sorghum flour at percentages (50%, 70%, and 90%); 2) Nutritional content of cookies substituted with bioguma sorghum flour in the form of protein, carbohydrate, and fat content; 3) Antioxidant activity of cookies substituted with sorghum flour bioguma varieties. This experimental research used the RAL method (Completely Randomized Design). Sorghum flour substitution formulation in 4 treatments, namely T0 (control), T1 (50% substitution), T2 (70% substitution), T3 (90% substitution). The research location was conducted at the State University of Medan, the Medan Industrial Standardization Research Center and the USU Pharmacy Laboratory with 30 research subjects. The data analysis technique was carried out descriptively and with the one-way-ANOVA Duncan Test. The best cookies were selected based on the ranking test were analyzed by gravimetric and titrimetric methods and the antioxidant activity test was analyzed by the DPPH method.

Based on the results of the study showed that the average value of 4.55 for the control formulation, 4.34 for the 50 percent formulation, 3.97 for the 70 percent formulation, and 3.70 for the 90 percent formulation. The result of the best formula that consumers are interested in is a cookie formula with a 50 percent substitution of sorghum flour. The substitution of sorghum flour was very significant on the level of differences in consumer perceptions seen from the level of preference for cookies ($\alpha = 0.05$). The nutritional content of cookies substituted with 50 percent sorghum flour is carbohydrate (49.9%), protein (5.69%), fat (25.2%) and has been declared to meet the quality requirements of cookies based on SNI No. 2973-2011. The antioxidant activity of cookies with 50 percent substitution of sorghum flour was 104.48 ppm in the medium category based on the IC50 value.

