

ABSTRACT

INNOVATION OF SNACK BARS WITH SUBSTITUTION OF SOY FLOUR AND MORINGA LEAF FLOUR AS SNACKS FOR ADOLESCENTS WITH ANEMIA (Analysis of Protein Content, Dietary Fiber, Iron, and Organoleptic Test)

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Anemia due to iron deficiency occurs as a result of insufficient iron intake, which leads to a decrease in hemoglobin concentration in the blood. Soy flour has a high protein content, while moringa leaf flour is rich in iron and fiber, making them suitable as raw materials for snack bars. This study analyzed the differences in substituting soy flour and moringa leaf flour in snack bar formulations concerning protein content, dietary fiber, iron levels, and organoleptic tests for adolescents with anemia. This study used a true experimental design with a Completely Randomized Design (CRD). There were four treatments and one control, with three repetitions of the analysis. The formulations used different ratios of soy flour to moringa leaf flour: F1 (100%:0%), F2 (98.5%:1.5%), F3 (97%:3%), F4 (95.5%:4.5%), F5 (94%:6%). The analytical methods included the Kjeldahl method for protein content, the gravimetric method for dietary fiber, spectrophotometry for iron content, and organoleptic testing for acceptability. The data analysis for protein, dietary fiber, and iron content was conducted using one-way ANOVA followed by Duncan's post hoc test. In contrast, organoleptic analysis used the Kruskal-Wallis test, followed by the Mann-Whitney post hoc test, with a significance level of $p < 0.005$. The results indicated a significant difference among snack bar formulations with the substitution of soy flour and moringa leaf flour regarding protein content, dietary fiber, iron levels, and organoleptic test results for adolescents with anemia ($p = 0.000$). In conclusion, there were significant differences in protein content, dietary fiber, iron levels, and organoleptic properties of snack bars with soy flour and moringa leaf flour substitution as a snack for adolescents with anemia.

Keywords: Anemia, adolescent girls, dietary fiber, protein, iron

ABSTRAK

INOVASI SNACK BAR DENGAN SUBSTITUSI TEPUNG KEDELAI DAN TEPUNG DAUN KELOR SEBAGAI *SNACK* PADA REMAJA ANEMIA (Analisi Kadar Protein, Serat Pangan, Zat Besi, dan Uji Organoleptik)

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Anemia defisiensi zat besi terjadi akibat kekurangan asupan zat besi, sehingga konsentrasi hemoglobin dalam darah berkurang. Asupan makanan yang mengandung protein, dan zat besi dapat mensintesis hemoglobin. Tepung kedelai memiliki kandungan protein tinggi dan tepung daun kelor memiliki kandungan zat besi dan serat yang tinggi, yang dapat dijadikan bahan baku *snack bar*. Penelitian ini bertujuan untuk menganalisis perbedaan substitusi tepung kedelai dan tepung daun kelor dalam formulasi *snack bar* terhadap kadar protein, serat pangan, zat besi, dan uji organoleptik pada remaja anemia. Jenis penelitian ini menggunakan *true experimental* dengan desain Rancangan Acak Lengkap (RAL). Terdapat 4 perlakuan dan 1 kontrol, dengan 3 pengulangan analisis. Formulasi ini menggunakan perbandingan tepung kedelai dengan tepung daun kelor. F1 (100%:0%), F2 (98,5%:1,5%), F3 (97%:3%), F4 (95,5%:4,5%), F5 (94%:6%). Metode analisis kadar protein menggunakan *kjeldahl*, serat pangan menggunakan *gravimetri*, zat besi menggunakan *spektrofotometri*, dan daya terima menggunakan uji organoleptik. Analisis data uji kadar protein, serat pangan, zat besi menggunakan metode *one way ANOVA* dilanjut dengan *post hoc duncan*, dan uji organoleptik menggunakan *kruskal-wallis* dilanjut dengan *post hoc mann-whitney* dengan nilai *p-value* $p < 0,005$. Hasil penelitian ini, terdapat perbedaan nyata antar formulasi *snack bar* substitusi tepung kedelai dan tepung daun kelor terhadap kadar protein, serat pangan, zat besi, dan uji organoleptik sebagai *snack* pada remaja anemia ($p = 0,000$). Kesimpulan dari penelitian ini, terdapat perbedaan pada kadar protein, serat pangan, zat besi, dan uji organoleptik pada *snack bar* substitusi tepung kedelai dan tepung daun kelor sebagai *snack* pada remaja anemia.

Kata kunci: Anemia, protein, remaja putri, serat pangan, zat besi