

SNACK BAR UMBI GARUT DAN KACANG MERAH DENGAN MIKROENKAPSULASI ZAT BESI SEBAGAI PANGAN DARURAT FUNGSIONAL BAGI IBU HAMIL

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Abstrak

Ibu hamil merupakan kelompok rentan yang berisiko mengalami Kekurangan Energi Kronik (KEK) dan anemia defisiensi besi, terutama pada kondisi darurat bencana. Pengembangan pangan darurat fungsional berbasis pangan lokal, seperti umbi garut dan kacang merah dengan mikroenkapsulasi zat besi, berpotensi membantu memenuhi kebutuhan gizi ibu hamil. Penelitian ini bertujuan menganalisis pengaruh perbandingan tepung umbi garut dan tepung kacang merah dengan mikroenkapsulasi zat besi terhadap kadar zat besi, daya cerna protein, kandungan proksimat, dan sifat organoleptik *snack bar*. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan tiga perlakuan, yaitu F1 (85%:15%), F2 (75%:25%), dan F3 (65%:35%). Data kadar zat besi, daya cerna protein, dan kandungan proksimat dianalisis menggunakan ANOVA dan DMRT, sedangkan data organoleptik dianalisis menggunakan uji *Kruskal-Wallis* dan *Mann-Whitney*. Hasil penelitian menunjukkan bahwa perbandingan tepung umbi garut dan tepung kacang merah berpengaruh nyata ($p < 0,05$) terhadap daya cerna protein, kadar abu, dan protein, tetapi tidak berpengaruh nyata ($p > 0,05$) terhadap kadar zat besi, kadar air, lemak, dan karbohidrat. Uji organoleptik menunjukkan perbedaan nyata ($p < 0,05$) pada warna, tekstur, dan rasa, tetapi tidak pada aroma. F3 terpilih sebagai formula terbaik dengan kandungan energi 103,20 kkal, protein 2,69 g, lemak 5,30 g, karbohidrat 11,19 g, zat besi 15,07 mg, dan daya cerna protein 56,73% per takaran saji (25 g). *Snack bar* memenuhi klaim BPOM sebagai pangan sumber zat besi.

Kata Kunci: Ibu Hamil, Kacang Merah, Mikroenkapsulasi Zat Besi, Pangan Darurat, Umbi Garut

ARROWROOT AND RED BEAN SNACK BAR WITH IRON MICROENCAPSULATION AS FUNCTIONAL EMERGENCY FOOD FOR PREGNANT WOMEN

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Abstract

Pregnant women are a vulnerable group at risk of Chronic Energy Deficiency (CED) and iron deficiency anemia, particularly during disaster emergencies. The development of functional emergency foods based on local ingredients, such as arrowroot and red bean flours fortified with microencapsulated iron, has the potential to help the nutritional needs of pregnant women. This study aimed to analyze the effect of different proportions of arrowroot flour and red bean flour with microencapsulated iron on iron content, protein digestibility, proximate composition, and sensory properties of snack bars. A Completely Randomized Design (CRD) with three formulations was employed, F1 (85%:15%), F2 (75%:25%), and F3 (65%:35%). Data on iron content, protein digestibility, and proximate composition were analyzed using ANOVA followed by DMRT, while sensory evaluation data were analyzed using the Kruskal-Wallis and Mann-Whitney tests. The results showed that the proportion of arrowroot flour and red bean flour significantly affected ($p < 0.05$) protein digestibility, ash content, and protein content but had no significant effect ($p > 0.05$) on iron content, fat, and carbohydrate contents. Sensory evaluation revealed significant differences ($p < 0.05$) in color, texture, and taste, whereas aroma was not significantly different ($p > 0.05$). F3 was selected as the best formulation, providing 103.20 kcal of energy, 2.69 g of protein, 5.30 g of fat, 11.19 g of carbohydrates, 15.07 mg of iron, and 56.73% protein digestibility per serving (25 g). The developed snack bar met BPOM claim requirements as a source of iron.

Keywords: Pregnant Women, Red bean, Iron Microencapsulation, Emergency Food, Snack bar, Arrowroot