

UJI INDEKS GLIKEMIK DAN BEBAN GLIKEMIK *EMERGENCY FOOD PRODUCT (EFP) BERBASIS UBI CILEMBU, KACANG BOGOR, DAN HANJELI*

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Abstrak

Indonesia merupakan negara dengan tingkat kerentanan bencana tinggi. BNPB mencatat 3.472 kejadian bencana pada tahun 2024 yang berdampak pada jutaan penduduk. Kondisi ini dapat mengganggu ketersediaan dan akses pangan, sehingga diperlukan pangan darurat yang praktis, bergizi, dan mendukung pengendalian glukosa darah. Emergency Food Product (EFP) berbasis ubi cilembu, kacang bogor, dan hanjeli berpotensi dikembangkan sebagai pangan darurat fungsional karena mengandung karbohidrat kompleks, protein nabati, dan senyawa bioaktif, namun penelitian mengenai nilai indeks glikemik (IG) dan beban glikemiknya (BG) masih terbatas. Penelitian ini bertujuan mengukur nilai IG dan BG EFP. Penelitian ini merupakan penelitian kuantitatif eksperimental dengan rancangan crossover pada 10 mahasiswa sehat berusia 18–23 tahun yang dipilih secara purposive sampling. Setiap subjek mengonsumsi pangan standar (roti tawar putih) dan pangan uji pada hari berbeda dengan washout selama tujuh hari. Kadar glukosa darah diukur menggunakan glukometer pada menit ke-0, 15, 30, 45, 60, 90, dan 120 setelah konsumsi. Nilai incremental area under the curve (IAUC) dihitung untuk menentukan IG, sedangkan BG dihitung berdasarkan nilai IG dan kandungan karbohidrat tersedia per sajian. Seluruh subjek memiliki status gizi normal dengan rata-rata IMT 21,87 kg/m². Hasil penelitian menunjukkan bahwa nilai Incremental Area Under the Curve (IAUC) pangan darurat lebih rendah ($2528,25 \pm 517,28$) dibandingkan pangan standar ($3785,25 \pm 940,76$) dan berbeda secara bermakna berdasarkan uji General Linear Model (GLM) Repeated Measures ($p = 0,002$), dengan nilai IG sebesar 49,19 (kategori rendah) dan BG sebesar 15,57 (kategori sedang). EFP berbasis ubi cilembu, kacang bogor, dan hanjeli memiliki IG rendah dan BG sedang, sehingga berpotensi dikembangkan sebagai alternatif pangan darurat berbasis pangan lokal dengan respons glikemik yang lebih terkendali.

Kata Kunci: Beban Glikemik, Hanjeli, Indeks Glikemik, Kacang Bogor, Ubi Cilembu

GLYCEMIC INDEX AND GLYCEMIC LOAD TEST OF EMERGENCY FOOD PRODUCT (EFP) BASED ON CILEMBU SWEET POTATO, BAMBARA GROUNDNUT, AND COIX SEED

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Abstract

Indonesia is a country with a high level of disaster vulnerability. The National Disaster Management Agency (BNPB) recorded 3,472 disaster events in 2024 that affected millions of people. These conditions can disrupt food availability and access, making it necessary to have emergency food products that are practical, nutritious, and support blood glucose control. An Emergency Food Product (EFP) made from cilembu sweet potatoes, bambara groundnut, and coix seed has the potential to be developed as a functional emergency food because it contains complex carbohydrates, plant-based protein, and bioactive compounds; however, research on its glycemic index (GI) and glycemic load (GL) remains limited. This study aims to measure the GI and GL values of the EFP. This was a quantitative experimental study using a crossover design involving 10 healthy students aged 18–23 years selected via purposive sampling. Each subject consumed a standard food (plain white bread) and the test food on different days with washout period of seven days. Blood glucose levels were measured using a glucometer at 0, 15, 30, 45, 60, 90, and 120 minutes after consumption. The incremental area under the curve (IAUC) was calculated to determine the GI, while the GL was calculated based on the GI value and the available carbohydrate content per serving. All subjects had normal nutritional status with a mean BMI of 21.87 kg/m². The results showed that the Incremental Area Under the Curve (IAUC) value for emergency food (2528.25 ± 517.28) was lower than that for standard food (3785.25 ± 940.76) and differed significantly according to the Repeated Measures General Linear Model (GLM) test ($p = 0.002$), with a GI value of 49.19 (low category) and a BG value of 15.57 (moderate category). EFPs made from cilembu sweet potatoes, bambara groundnut, and coix seed have a low GI and moderate BG, making them promising candidates for development as alternative emergency foods based on local ingredients with a more controlled glycemic response.

Keyword: Bambara Groundnut, Cilembu Sweet Potato, Coix Seed, Glycemic Index, Glycemic Load