

Evaluation of Quality and Glycemic Index Test in Coconut Crystal Sugar From Home Industry Production In Tangerang Village, Banyumas

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ABSTRACT

Background: Coconut sugar is a sweetening product that has a lower glycemic index (GI) than granulated sugar, which can be processed into crystal form. GI value in food has a relationship with blood sugar levels in patients with type 2 diabetes mellitus. The quality of coconut crystal sugar can be seen from the evaluation of the quality.

Objective: Evaluate the chemical quality (total sugar content, reducing sugar content, sucrose content, water content, ash content) and GI test of coconut crystal sugar from home industry production in Tangerang Village, Banyumas.

Methods: The quality evaluation used a quantitative descriptive analysis design and the GI test used a one group pretest-posttest experimental study design. The test for total sugar, reducing sugar and sucrose content used the Luffschrool method, the water and ash content used the Gravimetric method, the dietary fiber used the AOAC method (2005) and GI test used the IAUC method. Statistical analysis used an independent t-test.

Results: The average values of total sugar, reducing sugar, sucrose, water, and ash content of coconut crystal sugar were 66,209%; 1,76%; 64,653%; 12,687% and 2,158%, which was only reducing sugar that was appropriate with SNI quality requirements. The GI value of coconut crystal sugar was 53,72 (low GI) and granulated sugar was 72,62 (high GI). The results of the independent t-test showed that both did not have a significant difference in GI values ($p=0,088$). Meanwhile, the levels of dietary fiber from both had significant differences ($p=0,00$).

Conclusions: Some of the chemical contents of coconut crystal sugar did not appropriate with SNI (SII 0268-85) quality requirements. The glycemic index value of coconut crystal sugar is low and granulated sugar is high.

Keywords: Coconut crystal sugar; Diabetes mellitus; Glycemic index; Quality.

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Evaluasi Mutu dan Uji Indeks Glikemik pada Gula Kristal Kelapa Hasil Produksi *Home Industry* di Desa Tanggeran, Banyumas

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ABSTRAK

Latar belakang: Gula kelapa merupakan produk pemanis yang memiliki indeks glikemik (IG) lebih rendah dibanding dengan gula pasir, yang dapat diproses menjadi bentuk kristal. Kandungan IG pada makanan memiliki hubungan dengan kadar glukosa darah pada penderita diabetes mellitus tipe 2. Kualitas gula kristal kelapa dapat dilihat dari evaluasi mutu.

Tujuan: Mengevaluasi mutu kimia (gula total, gula pereduksi, sukrosa, kadar air, kadar abu) dan menguji IG pada gula kristal kelapa dari hasil produksi *home industry* di Desa Tanggeran, Banyumas.

Metode: Evaluasi mutu menggunakan desain penelitian deskriptif kuantitatif dan uji IG berupa studi eksperimental *one group pretest-posttest* design. Uji kadar gula total, gula pereduksi dan sukrosa menggunakan metode *Luffschrool*, kadar air dan abu menggunakan metode Gravimetri, serat pangan menggunakan metode AOAC (2005) dan uji IG menggunakan metode IAUC. Analisis bivariat uji IG menggunakan uji *independent t-test*.

Hasil: Nilai rerata gula total, gula reduksi, sukrosa, kadar air, dan kadar abu gula kristal kelapa berturut-turut yaitu 66,21%; 1,76%; 64,65%; 12,69% dan 2,16%, dimana hanya gula reduksi yang memenuhi syarat mutu SNI. Nilai IG pada gula kristal kelapa yaitu 53,72 (IG rendah) dan gula pasir 72,62 (IG tinggi). Hasil analisis *independent t-test* menunjukkan keduanya tidak memiliki perbedaan nilai IG yang signifikan ($p=0,088$). Sedangkan, kadar serat pangan keduanya memiliki perbedaan yang signifikan ($p=0,00$).

Simpulan: Kadar gula pereduksi pada gula kristal kelapa sudah memenuhi syarat mutu SNI (SII 0268-85). Nilai indeks glikemik gula kristal kelapa tergolong rendah dan gula pasir tergolong tinggi.

Kata kunci: Diabetes mellitus; Gula kristal kelapa; Indeks glikemik; Mutu.

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