POTENSI ANTIDIABETES *KOMBUCHA* GULA AREN DITINJAU DARI AKTIVITAS INHIBISI α-GLUKOSIDASE

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Potensi Antidiabetes *Kombucha* Gula Aren Ditinjau dari Aktivitas Inhibisi α-Glukosidase

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ABSTRAK

Latar Belakang: Diabetes Tipe 2 (DM2) merupakan penyakit metabolik yang memiliki dampak negatif dan prevalensinya meningkat di Indonesia. Salah satu metode penanganan DM2 adalah dengan menghambat aktivitas enzim α-glukosidase. Potensi aktivitas inhibisi α-glukosidase dimiliki *kombucha* gula aren yang mengalami fermentasi.

Tujuan: 1) Mengetahui formulasi terbaik *kombucha* gula aren berdasarkan vitamin C dan total fenol; 2) menganalisis dampaknya terhadap inhibisi α-glukosidase

Metode: Penelitian eksperimental dengan rancangan acak lengkap. Formulasi *kombucha* dibuat dengan memfermentasi gula aren 14 hari. Analisis proksimat dilakukan dengan metode sesuai SNI, analisis vitamin C dilakukan dengan spektrofotometri UV-Vis 265 nm, analisis total fenol dengan metode *Folin-Ciocalteu*, dan uji inhibisi α-glukosidase dengan membandingkan aktivitas antar sampel dan antar sampel dengan kontrol (*acarbose*). Data vitamin C dan total fenol dianalisis dengan *Multivariate Analysis of Variance*, data inhibisi α-glukosidase dianalisis dengan *Analysis of Variance*.

Hasil: Terdapat perbedaan signifikan kadar vitamin C dan total fenol ($p<0,05$) antar formulasi. Tiga formulasi terbaik *kombucha* gula aren memiliki perbedaan signifikan dalam aktivitas inhibisi α-glukosidase antar formulasi ($p<0,05$).

Simpulan: Terdapat aktivitas inhibisi α-glukosidase yang bersifat *dose response manner* berdasarkan kandungan vitamin C dan total fenol dalam formulasi.

Kata Kunci: diabetes melitus, *kombucha*, gula aren, vitamin C, total fenol, α-glukosidase

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The Antidiabetic Potential of Palm Sugar Kombucha Based on α-Glucosidase Inhibitory Activity

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ABSTRACT

Background: Type 2 diabetes (T2D) prevalence has increased sharply in Indonesia. One of the strategies to treat T2D is inhibiting α-glucosidase activity. It has been suggested that α-glucosidase inhibitory activity may be present in palm sugar kombucha.

Objective: 1) To determine the optimum formulation of palm sugar kombucha based on the concentration of vitamin C and total phenolic; 2) to analyze its effect on α-glucosidase inhibition activity.

Methods: Experimental research with a complete randomized design. Kombucha formulations were made by fermenting palm sugar for 14 days. Principally, a proximate analysis was performed based on National Standard (SNI). Vitamin C analysis was determined using UV-Vis spectrophotometry 265 nm. The total phenolic assay was performed using the Folin-Ciocalteu method. Finally, α-glucosidase inhibitory analysis was done by comparing formulation activities and between formulation and positive control (*acarbose*). Vitamin C dan total phenolic data were analyzed using multivariate analysis of variance, while α-glucosidase inhibition data was analyzed using variance analysis.

Results: Significant difference was found in vitamin C and total phenolic contents ($p<0,05$). The three best palm sugar kombucha formulations were also proven to be significantly different compared to each other in α-glucosidase inhibitory activity.

Conclusion: Dose-response manner α-glucosidase inhibitory activity was found based on the formulations' vitamin C dan total phenolic content.

Key Words: type 2 diabetes, kombucha, palm sugar, vitamin c, total phenolic, α-glucosidase

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