

PENGARUH LAMA WAKTU FERMENTASI BUNGA TELANG (*Clitoria ternatea* L.) TERHADAP KADAR ANTOSIANIN TOTAL DAN INHIBISI α -GLUKOSIDASE

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ABSTRAK

Latar Belakang: Fermentasi bunga telang (*Clitoria ternatea* L.) dapat menyebabkan perubahan kandungan senyawa bioaktif yang berpotensi memengaruhi aktivitas inhibisi enzim α -glukosidase. Pengaruh lama fermentasi terhadap kadar antosianin total dan aktivitas inhibisi α -glukosidase pada fermentasi bunga telang belum diketahui.

Tujuan Penelitian: Mengetahui pengaruh lama waktu fermentasi bunga telang terhadap kadar antosianin total dan aktivitas inhibisi enzim α -glukosidase serta hubungan antara keduanya.

Metode: Fermentasi bunga telang dilakukan menggunakan SCOBY dengan lama fermentasi 0, 7, dan 14 hari. Kadar antosianin total ditetapkan menggunakan metode pH diferensial, sedangkan aktivitas inhibisi α -glukosidase diuji secara *in vitro* dan dinyatakan sebagai nilai IC_{50} . Analisis data dilakukan menggunakan uji Kruskal-Wallis dan dilanjutkan dengan uji Dunn. Hubungan antara kadar antosianin total dan aktivitas inhibisi α -glukosidase dianalisis menggunakan korelasi Pearson.

Hasil: Hasil uji Kruskal-Wallis menunjukkan adanya perbedaan yang signifikan pada kadar antosianin total antar lama fermentasi ($p = 0,027$), dengan perbedaan signifikan berdasarkan uji Dunn terdapat antara T0 dan T14. Aktivitas antidiabetes yang ditunjukkan dari nilai IC_{50} inhibisi α -glukosidase pada T0, T7, dan T14 menunjukkan T14 memiliki aktivitas inhibisi paling kuat. Hasil uji Kruskal-Wallis menunjukkan tidak terdapat perbedaan yang signifikan pada aktivitas inhibisi α -glukosidase ($p = 0,102$). Korelasi Pearson menghasilkan nilai $r = -0,582$ dan $p = 0,605$, sehingga tidak terdapat hubungan yang signifikan antara kadar antosianin total dan aktivitas inhibisi α -glukosidase.

Kesimpulan: Lama fermentasi menunjukkan perbedaan yang signifikan terhadap kadar antosianin total, tetapi tidak menunjukkan perbedaan yang signifikan terhadap aktivitas inhibisi α -glukosidase. Fermentasi 14 hari memiliki aktivitas inhibisi α -glukosidase paling baik berdasarkan nilai IC_{50} terendah. Kadar antosianin total tidak memiliki hubungan yang signifikan dengan aktivitas inhibisi α -glukosidase.

Kata Kunci: Antosianin total, Fermentasi bunga telang, IC_{50} , α -glukosidase.

THE EFFECT OF FERMENTATION DURATION OF BUTTERFLY PEA FLOWERS (*Clitoria ternatea* L.) ON TOTAL ANTHOCYANIN CONTENT AND α -GLUCOSIDASE INHIBITION

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ABSTRACT

Background: Fermentation of butterfly pea flowers (*Clitoria ternatea* L.) may cause changes in the content of bioactive compounds that potentially affect α -glucosidase enzyme inhibitory activity. However, the effect of fermentation duration on total anthocyanin content and α -glucosidase inhibitory activity in fermented butterfly pea flowers has not yet been determined.

Objective: This study aimed to determine the effect of fermentation duration of butterfly pea flowers on total anthocyanin content and α -glucosidase inhibitory activity, as well as the relationship between the two parameters.

Methods: Butterfly pea flowers were fermented using a SCOBY for 0, 7, and 14 days. Total anthocyanin content was determined using the pH differential method, while α -glucosidase inhibitory activity was evaluated *in vitro* and expressed as the IC₅₀ value. Data were analyzed using the Kruskal-Wallis test, followed by Dunn's test. The relationship between total anthocyanin content and α -glucosidase inhibitory activity was analyzed using Pearson's correlation test.

Results: The Kruskal-Wallis test showed a significant difference in total anthocyanin content among fermentation durations ($p = 0.027$), with a significant difference between T0 and T14 based on Dunn's test. The antidiabetic activity, as indicated by the IC₅₀ values for α -glucosidase inhibition at T0, T7, and T14, showed that T14 had the strongest inhibitory activity. The Kruskal-Wallis test showed no significant difference in α -glucosidase inhibitory activity among fermentation durations ($p = 0.102$). Pearson's correlation analysis yielded $r = -0.582$ and $p = 0.605$, indicating no significant relationship between total anthocyanin content and α -glucosidase inhibitory activity.

Conclusion: Fermentation duration resulted in significant differences in total anthocyanin content but did not result in significant differences in α -glucosidase inhibitory activity. The 14-day fermentation showed the strongest α -glucosidase inhibitory activity based on the lowest IC₅₀ value. Total anthocyanin content was not significantly correlated with α -glucosidase inhibitory activity.

Keywords: Total anthocyanin, butterfly pea flower fermentation, IC₅₀, α -glucosidase.