Kandungan Flavonoid dan Fenolik Ekstrak Daun Tanaman Jati Cina dari Tawangmangu sebagai Antioksidan dan Penghambat Enzim Alfa-Glukosidase = Flavonoid and Phenolic Content of Chinese Senna Leaf Extract from Tawangmangu as Antioxidant and Alpha-Glucosidase Enzyme Inhibitor

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Abstrak

Diabetes melitus tipe 2 (T2DM) terus meningkat di Indonesia, dengan prevalensi 10,8% pada 2021. Stres oksidatif akibat hiperglikemia kronis berperan dalam patogenesis T2DM, sehingga penggunaan antioksidan dan penghambatan alfa-glukosidase menjadi strategi potensial. Penelitian ini mengevaluasi aktivitas antioksidan dan penghambatan enzim alfa-glukosidase dari ekstrak daun jati cina asal Tawangmangu, Jawa Tengah, menggunakan metode DPPH dan Alpha-Glucosidase Inhibitor Screening Kit. Hasil menunjukkan ekstrak memiliki IC50 sebesar 135.6 Î¼g/mL, dibandingkan dengan asam askorbat (IC50 0.57 Î¼g/mL). Aktivitas inhibisi alfa-glukosidase oleh ekstrak mencapai 23%, sedangkan acarbose mencapai 88%. Kadar total flavonoid dan fenolik masing-masing adalah 0.1092% dan 0.049%. Meskipun aktivitasnya lebih rendah dibandingkan standar, ekstrak jati cina memiliki potensi sebagai terapi tambahan untuk T2DM. Penelitian lanjutan diperlukan untuk mengkonfirmasi temuan ini melalui uji in vivo, uji klinis, dan evaluasi keamanan jangka panjang.

.....Type 2 diabetes mellitus (T2DM) continues to rise in Indonesia, with a prevalence of 10.8% in 2021. Oxidative stress due to chronic hyperglycemia plays a role in the pathogenesis of T2DM, making the use of antioxidants and alpha-glucosidase inhibition a potential strategy. This study evaluates the antioxidant activity and alpha-glucosidase inhibition of *Senna alexandrina* leaves extract from Tawangmangu, Central Java, using the DPPH method and the Alpha-Glucosidase Inhibitor Screening Kit. The results show that the extract has an IC50 value of 135.6 Î¼g/mL, compared to ascorbic acid (IC50 0.57 Î¼g/mL). The alpha-glucosidase inhibition activity of the extract reached 23%, while acarbose achieved 88%. The total flavonoid and phenolic content were 0.1092% and 0.049%, respectively. Although its activity is lower than the standard, *Senna alexandrina* extract shows potential as an adjunct therapy for T2DM. Further research is needed to confirm these findings through in vivo studies, clinical trials, and long-term safety evaluations.