

**AKTIVITAS INHIBISI ENZIM α -GLUKOSIDASE DAN PENETAPAN
KADAR FLAVONOID TOTAL PADA EKSTRAK DAUN DAN
BATANG KARI (*Bergera koenigii* L.) SECARA *IN VITRO***

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ABSTRAK

Diabetes mellitus (DM) adalah penyakit metabolik kronis yang ditandai oleh hiperglikemia akibat gangguan sekresi atau kerja insulin. Salah satu terapi alternatif DM adalah menghambat enzim α -glukosidase untuk memperlambat penyerapan glukosa. Obat sintetik seperti *acarbose* telah banyak digunakan, namun penggunaannya dapat menimbulkan efek samping oleh karena itu, pencarian senyawa alami sebagai terapi alternatif perlu dikembangkan. *Bergera koenigii* L. diketahui mengandung senyawa bioaktif seperti flavonoid, alkaloid, dan karbazol yang berpotensi sebagai antidiabetik. Penelitian ini bertujuan untuk mengetahui aktivitas penghambatan enzim α -glukosidase serta menentukan kadar flavonoid total dari ekstrak daun dan batang kari. Ekstraksi dilakukan secara bertingkat menggunakan metode refluks dengan pelarut n-heksana, etil asetat dan etanol 96% secara berturut-turut. Uji inhibisi enzim dilakukan secara *in vitro* menggunakan substrat p-nitrofenil- α -D-glukopiranosida (pNPG), sedangkan penetapan kadar flavonoid dilakukan dengan metode Chang menggunakan kuersetin sebagai standar. Hasil uji inhibisi enzim α -glukosidase menunjukkan bahwa ekstrak daun kari memiliki nilai IC_{50} sebesar 64,39 μ g/mL, 30,49 μ g/mL dan 41, 39. Sedangkan ekstrak batang kari memiliki nilai IC_{50} sebesar 83,34 μ g/mL, 89,30 μ g/mL dan 105,29 μ g/mL. Hasil analisis kadar flavonoid total menunjukkan ekstrak daun kari mengandung 8,86 mgQE/100mg, 10,14 mgQE/100mg dan 7,56 mgQE/100mg. Sedangkan ekstrak batang kari 8,82 mgQE/100mg, 6,39 mgQE/100mg dan 4,78 mgQE/100mg. Ekstrak etil asetat daun kari memiliki kadar flavonoid tertinggi serta aktivitas penghambatan enzim α -glukosidase paling kuat, sehingga berpotensi dikembangkan sebagai kandidat antidiabetik herbal alami.

Kata kunci: *Bergera koenigii*, flavonoid, α -glukosidase, IC_{50} , antidiabetik

**INHIBITION ACTIVITY OF THE ENZYME α -GLUCOSIDASE AND
DETERMINATION OF TOTAL FLAVONOID LEVELS IN LEAF
EXTRACTS AND STEM KARI (*Bergera koenigii* L.) IN *VITRO***

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ABSTRACT

Diabetes mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia due to impaired insulin secretion or work. One alternative therapy for DM is to inhibit the enzyme α -glucosidase to slow down glucose absorption. Synthetic drugs such as acarbose have been widely used, but their use can cause side effects therefore, the search for natural compounds as alternative therapies needs to be developed. *Bergera koenigii* L. is known to contain bioactive compounds such as flavonoids, alkaloids, and carbazoles that have the potential to be antidiabetics. This study aims to determine the inhibition activity of the enzyme α -glucosidase and determine the total flavonoid levels of curry leaf and stem extracts. Extraction was carried out in stages using the reflux method with n-hexane, ethyl acetate and 96% ethanol solvents in succession. The enzyme inhibition test was carried out in vitro using the p-nitrophenyl- α -D-glucokopiranoside (pNPG) substrate, while the determination of flavonoid levels was carried out using the Chang method using quercetin as the standard. The results of the α -glucosidase enzyme inhibition test showed that curry leaf extract had IC₅₀ values of 64.39 μ g/mL, 30.49 μ g/mL and 41.39. Meanwhile, curry stem extract has IC₅₀ values of 83.34 μ g/mL, 89.30 μ g/mL and 105.29 μ g/mL. The results of the analysis of total flavonoid levels showed that curry leaf extract contained 8.86 mgQE/100mg, 10.14 mgQE/100mg and 7.56 mgQE/100mg. Meanwhile, curry stem extract is 8.82 mgQE/100mg, 6.39 mgQE/100mg and 4.78 mgQE/100mg. Curry leaf ethyl acetate extract has the highest flavonoid levels as well as the strongest α -glucosidase enzyme inhibiting activity, so it has the potential to be developed as a natural herbal antidiabetic candidate.

Keywords: *Bergera koenigii*, flavonoids, α -glucosidase, IC₅₀, antidiabetic