

ABSTRAK

Diabetes melitus merupakan penyakit kronis dan prevalensinya yang terus meningkat secara global. Diabetes melitus sering ditandai dengan meningkatnya kadar gula darah dalam tubuh. Salah satu pendekatan untuk menurunkan kadar gula darah dalam tubuh adalah dengan menghambat enzim alfa glukosidase yang terlibat dalam pencernaan karbohidrat. Namun, sebagian besar obat antidiabetes memiliki beberapa efek samping. Tanaman brotowali diketahui memiliki berbagai senyawa bioaktif dan potensi sebagai agen antidiabetes. Penelitian ini bertujuan mengevaluasi aktivitas penghambatan enzim alfa glukosidase ekstrak tanaman brotowali dengan metode kolorimetri dan 3,5-dinitro salysilic acid (DNS) sebagai reagenya. Ekstrak dari batang brotowali disiapkan dengan metode maserasi menggunakan pelarut etanol 96%. Aktivitas penghambatan enzim alfa glukosidase diukur dengan spektrofotometri UV-Vis menggunakan acarbose sebagai kontrol positif. Hasil penelitian menunjukkan bahwa ekstrak etanol batang brotowali (nilai IC_{50} 1.291 ± 0.001 mg/mL) memiliki potensi aktivitas penghambatan alfa glukosidase namun tidak sebaik acarbose (nilai IC_{50} 0.452 ± 0.005 mg/mL). Nilai IC_{50} ekstrak etanol batang brotowali dan acarbose dianalisis dengan uji Shapiro-Wilk dilanjutkan uji T tidak berpasangan. Berdasarkan hasil uji T tidak berpasangan diketahui bahwa terdapat perbedaan nilai IC_{50} antara ekstrak etanol batang brotowali dan acarbose yang signifikan ($p < 0,05$).

Kata kunci: batang brotowali, alfa glukosidase, acarbose, IC_{50} , diabetes melitus

ABSTRACT

Diabetes mellitus is a chronic disease and its prevalence is tremendously increasing globally. Diabetes mellitus is often characterized by increase blood sugar levels in the body. One approach to lowering blood sugar levels in the body is to inhibit the enzyme alpha glucosidase, which is involved in the digestion of carbohydrates. However, most antidiabetic drugs have some side effects. Brotowali is known by its various bioactive compounds and potency as an antidiabetic agent. This study aims to evaluate the inhibitory activity the alpha glucosidase enzyme of brotowali extract using colorimetric method and 3,5-dinitro salysilic acid (DNS) as the reagent. The extract from the brotowali stem was prepared by maceration method using 96% ethanol as solvent. The inhibitory activity of alpha glucosidase enzyme was measured by UV-Vis spectrophotometry using acarbose as a positive control. The results showed that the ethanol extract of brotowali stem (IC_{50} value 1.291 ± 0.001 mg/mL) had the potential to inhibit alpha glucosidase activity but was not as good as acarbose (IC_{50} value 0.452 ± 0.005 mg/mL). The IC_{50} value of the ethanol extract of brotowali stem and acarbose were analyzed by using the Shapiro-Wilk test followed by an unpaired T test. Based on the results of the unpaired T test, it is known that there is a significant difference in the IC_{50} value between extract brotowali and acarbose ($p < 0.05$).

Key words: brotowali stem, alpha glucosidase, acarbose, IC_{50} , diabetes melitus.