

Uji penghambatan aktivitas alfa-glukosidase, alfa-amilase dan identifikasi golongan senyawa pada beberapa tanaman obat Indonesia = Inhibition test of alpha glucosidase alpha amylase activity and identification of group compound on some Indonesian medicinal plants

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Abstrak

[ABSTRAK

Diabetes melitus merupakan penyakit atau gangguan metabolisme yang ditandai dengan hiperglikemia disebabkan oleh gangguan sekresi insulin atau penurunan aktivitas insulin. Pada penelitian ini dilakukan uji penghambatan aktivitas α-glukosidase dan α-amilase pada 10 jenis tanaman obat Indonesia, yaitu Averrhoa bilimbi Linn. (daun), Orthosiphon aristatus (Blume) Miq. (daun), Gynura procumbens (Lour.) Merr. (daun), Gardenia augusta Merr. (daun), Artocarpus altilis (Parkinson) Fosberg (daun), Centella asiatica L. Urban (herba), Persea americana Mill. (biji), Nephelium Lappaceum L. (biji), Zingiber officinale Roxb. (rimpang), Curcuma xanthorrhiza Roxb. (rimpang). Serbuk simplisia diekstraksi menggunakan atanol 70% dengan metode refluks. Uji penghambatan aktivitas α-glukosidase menggunakan substrat p-Nitrofenil-α-D-Glukopiranosida (PNPG) yang menghasilkan produk p-nitrofenol. Produk tersebut diukur serapannya menggunakan microplate reader pada λ 405 nm. Uji penghambatan aktivitas α-amilase menggunakan substrat amilum yang menghasilkan produk maltosa dan akan mereduksi reagen warna Dinitrosalicylic Acid (DNS). Produk tersebut diukur serapannya menggunakan Spektrofotometer UV-Vis pada λ 540 nm. Hasil pengujian menunjukkan bahwa biji Persea americana Mill. memiliki daya inhibisi terbesar terhadap α-glukosidase dan α-amilase, dengan nilai IC50 36,82 μg/mL pada uji α-glukosidase, dan % inhibisi 88,26% serta IC50- 365,14 µg/mL pada uji α-amilase. Hasil identifikasi golongan senyawa kimia pada 10 ekstrak uji sebagian besar mengandung alkaloid, glikosida, dan flavonoid.

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<i>ABSTRACT

, Diabetes mellitus is a disease or metabolic disorder characterized by hyperglycemia due to impaired insulin secretion or decreasing of insulin activity. In this research was performed by determining the inhibitor activity of α-glucosidase and α-amylase from 10 species of Indonesian medicinal plants, such as Averrhoa bilimbi Linn. (leaves), Orthosiphon aristatus (Blume) Miq. (leaves), Gynura procumbens (Lour.) Merr. (leaves), Gardenia augusta Merr. (leaves), Artocarpus altilis (Parkinson) Fosberg (leaves), Centella asiatica L. Urban (herbs), Persea americana Mill. (seeds), Nephelium Lappaceum L. (seeds), Zingiber officinale Roxb. (rhizomes), Curcuma xanthorrhiza Roxb. (rhizomes). The symplisia powder was extracted by reflux using 70% ethanol. Testing α-glucosidase inhibitor activity using the substrate p-nitrophenyl-α-D-Glukopiranosida (PNPG) that produced p-nitrophenol. The product was measured at λ 405 nm by a microplate reader. Testing α-amylase inhibitor activity using starch substrate that would produce maltose and would reduce the color reagents Dinitrosalicylic Acid (DNS). The product was measured by an UV-Vis spectrophotometer at λ 540 nm. The testing results showed that the avocado seed (Persea americana Mill.) had a greatest inhibition against α-glucosidase and α-amylase,

with IC₅₀ values of 36.82 µg/mL at α-glucosidase test, and %inhibition 88.26%, IC₅₀ values of 364.135 µg/mL in α-amylase test. The results of chemical compounds identification in 10 extracts generally contain alkaloids, glycosides, and flavonoids.

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