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Kajian Literatur Aktivitas Penurunan Kadar Glukosa Daun Singawalang
(*Petiverie alliacea L.*) Secara *In Vitro* dan *In Vivo*

ABSTRAK

Latar Belakang: Diabetes melitus adalah gangguan metabolik yang ditandai dengan hiperglikemia dan kelainan pada metabolisme protein, lemak dan karbohidrat. Menurut IDF, pada tahun 2017 Indonesia menduduki peringkat ke tujuh di dunia dengan jumlah 10,3 juta penderita DM. Salah satu tanaman herbal yang dapat digunakan sebagai antidiabetes yaitu daun singawalang (*Petiverie alliacea L.*). Tujuan penelitian untuk mengetahui aktivitas penurunan kadar glukosa daun Singawalang.

Metode: Penelitian ini merupakan studi literatur yang dilakukan dengan metode non-eksperimental mengenai aktivitas penurunan kadar glukosa pada daun singawalang dengan menggunakan lima jurnal yang terdiri dari 3 jurnal nasional yang terindeks SINTA dan 2 jurnal internasional yang terindeks SCOPUS.

Hasil: Hasil pengujian secara *in vitro* dinyatakan dengan nilai persen IC₅₀ dari kelompok fraksi air yaitu 0,33 mg/mL dan nilai persentase penghambatan α -amilase pada ekstrak heksana konsentrasi 100 μ g / ML yaitu 98,41 \pm 0,75 % pada uji pati-iodida. Hasil pengujian secara *in vivo* kandungan senyawa ekstrak etanol daun Singawalang dan fraksinya dapat menurunkan kadar glukosa yaitu pada rentang dosis 80 mg/kg BB hingga 360 mg/kg BB. Aktivitas penurunan kadar glukosa singawalang diduga karena mengandung metabolit sekunder yaitu senyawa *thiosulfinates, sulfine, benzaldehyde, benzyl 2-hydroxyethyl trisulphide, coumarin isoarborinol, isoarborinol acetate, isoarborinol cinnamate, isothiocyantes, polifenol, senfol, tanin, dan trithiolaniacine.*

Simpulan: Ekstrak etanol senyawa daun singawalang dan fraksinya memiliki aktivitas dalam menurunkan kadar glukosa dengan rentang dosis 80 mg/kg BB-360 mg/kg BB serta nilai IC₅₀ yaitu 0,33 mg/mL serta nilai persentase penghambatan α -amilase yaitu 98,41 \pm 0,75 %.

Kata Kunci: daun Singawalang, diabetes mellitus, glukosa, *in vitro*, *in vivo*

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Literature Study of Decreasing Glucose Levels in Singawalang Leaves
(*Petiverie alliacea L.*) *In Vitro* and *In Vivo*

ABSTRACT

Background: Diabetes mellitus is a metabolic disorder characterized by hyperglycemia and disorders of protein, fat and carbohydrate metabolism. According to the IDF, in 2017 Indonesia was ranked seventh in the world with a total of 10.3 million DM sufferers. One of the herbs that can be used as an antidiabetic is singalawang leaves (*Petiverie alliacea L.*). The research objective was to determine the activity of reducing glucose levels in Singawalang leaves.

Method: This research is a literature study conducted with non-experimental methods regarding the activity of reducing glucose levels in singawalang leaves using five journals consisting of 3 national journals indexed by SINTA and 2 international journals indexed by SCOPUS.

Results: The results of the *in vitro* test were expressed by the IC50 percent value of the water fraction group, namely 0.33 mg/ml and the percentage value - amylase inhibition in the hexane extract at a concentration of 100 g/ML, namely $98.41 \pm 0.75\%$ in the starch test -iodide. The results of *in vivo* testing, the content of ethanol extract of singawalang leaves and their fractions can reduce glucose levels in a dose range of 80 mg/kg BW to 360 mg/kg BW. The activity of reducing glucose levels in Singapore is thought to be due to the presence of secondary metabolites, namely thiosulfinate, sulfin, benzaldehyde, benzyl 2-hydroxyethyl trisulfide, coumarin isoarborinol, isoarborinol acetate, isoarborinol cinnamate, isothiocyanates, polyphenols, senfol, and tannins.

Conclusion: The ethanol extract of singawalang leaf compounds and their fractions has activity in lowering glucose levels with a dose range of 80 mg/kg BW-360 mg/kg BW and an IC50 value of 0.33 mg/mL as well as the percentage value of -amylase inhibition is $98.41 \pm 0.75\%$

Keywords: singawalang leaf, diabetes mellitus, glucose, *in vitro*, *in vivo*