ABSTRAK

Diabetes melitus merupakan suatu kelainan penyakit metabolisme yang ditandai dengan hiperglikemia dan keadaan abnormalitas karbohidrat, lemak, dan protein. Enzim alfa amilase dapat mengubah karbohidrat menjadi sederhana seperti pati diubah menjadi oligosakarida yang lebih kecil. Lada (*Piper nigrum* L.) merupakan salah satu tanaman yang diduga memiliki aktivitas penghambatan enzim alfa amilase. Penelitian ini bertujuan untuk mengetahui potensi dari ekstrak kloroform daun lada dalam menghambat enzim alfa amilase secara *in vitro*. Ekstrasi senyawa menggunakan pelarut kloroform dengan metode maserasi yang diuapkan sampai menjadi ekstrak kental. Hasil pengujian yang diperoleh nilai rata-rata persen penghambatan ekstrak kloroform daun lada pada konsentrasi 4 mg/mL yaitu 47,32%, konsentrasi 8 mg/mL yaitu 58,96%, konsentrasi 16 mg/mL yaitu 70,31%, dan konsentrasi 32 mg/mL yaitu 86,65%. Nilai IC_{50} kelompok kontrol positif acarbose sebesar 2,784 ± 0,333 mg/mL, sementara untuk nilai IC_{50} ekstrak kloroform daun lada sebesar 13,089 ± 0,667 mg/mL. Data diolah secara statistik dan didapatkan perbedaan inhibisi yang signifikan $P < 0,05$ pada setiap perbedaan konsentrasi ekstak kloroform daun lada. Perbedaan signifikan $P < 0,05$ dengan metode Uji T pada perbandingan IC_{50} acarbose dan ekstrak kloroform daun lada.

Kata kunci : daun lada, ekstrak kloroform, maserasi, enzim alfa amilase, antidiabetes, spektrofotometri UV-VIS.

ABSTRACT

Diabetes mellitus is a metabolic disease disorder characterized by hyperglycemia and abnormal conditions of carbohydrates, fats, and proteins. The enzyme alpha-amylase can convert carbohydrates into simple ones like starch is converted into smaller oligosaccharides. Pepper (Piper nigrum L.) is one of the plants thought to have alpha amylase enzyme inhibitory activity. This study aims to determine the potential of pepper leaf chloroform extract in inhibiting the alpha amylase enzyme in vitro. Extraction of compounds using chloroform solvent with maceration method which is evaporated until it becomes a thick extract. The test results obtained the average percent inhibition of pepper leaf chloroform extract at a concentration of 4 mg/mL was 47.32%, a concentration of 8 mg/mL was 58.96%, a concentration of 16 mg/mL was 70.31%, and a concentration of 16 mg/mL was 70.31%. 32 mg/mL which is 86.65%. The IC50 value of acarbose positive control group was 2.784 ± 0.333 mg/mL, while the IC50 value of pepper leaf chloroform extract was 13.089 ± 0.667 mg/mL. The data were statistically processed and a significant difference in inhibition was obtained, $P < 0.05$ for each difference in the concentration of pepper leaf chloroform extract. Significant difference $P < 0.05$ with the T test method in the ratio of IC50 acarbose and pepper leaf chloroform extract.

Key words: *pepper leaf, chloroform extract, maceration, alpha amylase enzyme, antidiabetic, UV-VIS spectrophotometry.*