

ABSTRACT

STUDY OF THE CAPABILITY OF PURPLE SWEET POTATO (*Ipomoea Batatas* L.) AND MODIFIED PURPLE SWEET POTATO FLOUR CRUDE EXTRACT IN INHIBITING α -AMYLASE ENZYME ACTIVITY

By

INDRAJATI

Purple sweet potato is one of food materials which has potential as an alternative diet for diabetic mellitus sufferers. Anthocyanin which is the most important content in purple sweet potato has a role in inhibiting α -amylase enzyme activity. One way to extend the shelf life of purple sweet potato is to process it into modified purple sweet potato flour. The purpose of this research was to find out the capability of crude extract of purple sweet potato and modified purple sweet potato flour in inhibiting α -amylase enzyme activity. The research was arranged in the Complete Randomized Block Design (CRBD) with four treatments and three replications. Similarity and addition of the data were analyzed using the Bartlett and Tuckey tests. The data then were analyzed by variance to determine the effect between treatments. If there were significant effects of the data, the data were further analyzed by Duncan Multiple Range Test (DMRT) at 5% of real significance. The in vitro inhibition test of α -amylase enzyme activity was done using spectrophotometry method. The result showed the inhibition of α -amylase enzyme activity by crude extract of purple sweet potato and modified purple

sweet potato flour on the treatment of resistant starch rich-purple sweet potato flour (TP) by 41,98%, half gelatinized purple sweet potato flour (TG) by 32,59%, purple sweet potato flour (TU) by 30,72%, and fresh purple sweet potato (US) by 23,13%.

Keywords: *-amylase, enzyme activity, crude extract, purple sweet potato*

ABSTRAK

KAJIAN KEMAMPUAN EKSTRAK KASAR UBI JALAR UNGU (*Ipomoea Batatas L.*) DAN TEPUNG UBI JALAR UNGU TERMODIFIKASI DALAM MENGHAMBAT AKTIVITAS ENZIM α -AMILASE

Oleh

INDRAJATI

Ubi jalar ungu merupakan salah satu bahan pangan yang berpotensi sebagai alternatif diet bagi penderita diabetes melitus. Kandungan terpenting pada ubi jalar ungu yaitu antosianin yang berperan dalam menghambat aktivitas enzim α -amilase. Salah satu cara untuk memperpanjang masa simpan ubi jalar ungu yaitu mengolahnya menjadi tepung ubi jalar ungu termodifikasi. Penelitian ini bertujuan untuk mengetahui kemampuan ekstrak kasar ubi jalar ungu dan tepung ubi jalar ungu termodifikasi dalam menghambat aktivitas enzim α -amilase. Penelitian ini disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) dengan empat perlakuan dan tiga ulangan. Kehomogenan data dianalisis dengan uji Bartlett dan kemenambahan data diuji dengan uji Tukey. Data yang homogen dianalisis dengan sidik ragam untuk mendapatkan penduga ragam galat dan mengetahui ada tidaknya pengaruh antar perlakuan. Data dianalisis lebih lanjut menggunakan Uji Duncan untuk mengetahui perbedaan antar perlakuan pada taraf nyata 5%. Pengujian penghambatan aktivitas enzim α -amilase dilakukan secara *in vitro* menggunakan metode spektrofotometri. Hasil penelitian menunjukkan

penghambatan aktivitas enzim -amilase oleh ekstrak kasar ubi jalar ungu dan tepung ubi jalar ungu termodifikasi pada perlakuan tepung ubi jalar ungu kaya pati resisten (TP) sebesar 41,98%, tepung ubi jalar ungu tergelatinisasi sebagian (TG) sebesar 32,59%, tepung ubi jalar (TU) sebesar 30,72%, dan ubi jalar ungu segar (US) sebesar 23,13%.

Kata kunci: -amilase, aktivitas enzim, ekstrak kasar, ubi jalar ungu