ABSTRAK

Judul :Pengaruh Cara Pengeringan Simplisia Dan Ekstraksi Dengan Metode *Ultrasonic Assisted Extraction* Terhadap Aktivitas Enzim α-Glukosidase Ekstrak Etanol 96% Jahe Merah (*Zingiber officinale* Roscoe.)

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Pengeringan merupakan tahapan terpenting dalam menjaga kestabilan senyawa pada simplisia. Melalui proses pengeringan yang tepat, simplisia dapat disimpan untuk waktu yang lama dan tidak terjadi perubahan terhadap kandungan bahan aktifnya. Tanaman jahe merah merupakan tanaman suku zingiberaceae yang mengandung berbagai senyawa aktif, terutama *6-gingerol*, *6-shogaol*, *zingeron*, fenolat dan flavonoid. *6-gingerol* dilaporkan sebagai senyawa aktif paling melimpah dalam jahe, dengan berbagai efek farmakologis, termasuk antioksidan, analgesik, obat anti-inflamasi dan antidiabetik melalui mekanisme penghambatan enzim Alfa glukosidase. Penelitian ini dilakukan untuk mengetahui pengaruh cara pengeringan terhadap aktivitas penghambatan enzim alfa glukosidase ekstrak etanol 96% jahe merah yang diekstrasi dengan bantuan gelombang ultrasonik. Hasil skrinning fitokimia menunjukan jahe merah memiliki senyawa golongan, flavonoid, alkaloid, saponin, tannin, dan terpenoid. Pengujian kandungan total fenol pada jahe merah dengan menggunakan spektrofotometer UV-Vis dengan panjang gelombang 742 nm menggunakan pereaksi folin-ciocalteu dan asam galat, menunjukan hasil total fenol jahe merah hasil pengeringan dengan sinar matahari langsung 155,81±4,39 mgGAE/g, ditutup kain hitam 132,16±5,48 mgGAE/g, diangin-anginkan pada suhu kamar 170,81±5,85 mgGAE/g, dan dengan dehidrator 178,16±4,88 mgGAE/g. Pengujian kandungan total flavonoid jahe merah menggunakan spektrofotometri UV-Vis dengan panjang gelombang 440 nm menggunakan pereaksi $AlCl_3$ dan kuersetin menunjukkan hasil total flavonoid ekstrak jahe merah hasil pengeringan dengan sinar matahari langsung 3,55±0,06 mgQE/g, ditutup kain hitam 3,47±0,02 mgQE/g, diangin-anginkan pada suhu kamar 3,67±0,01 mgQE/g, dan dengan dehidrator 3,90±0,04 mgQE/g. Pengujian aktivitas penghambatan Alfa glukosidase menunjukan hasil matahari langsung 5,084 ppm, kain hitam 8,783 ppm, angin-angin 4,929 ppm, dan dehidrator 7,084 ppm. Sedangkan akarbose sebagai kontrol positif memiliki nilai IC_{50} sebesar 3,387 ppm.

Kata kunci : Jahe Merah, Cara pengeringan simplisia, IC_{50}, Spektrofotometri

ABSTRACT

Title : The Effect of Simplicia Drying And Extraction With *Ultrasonic Assisted Extraction* Method on Enzyme Activity Glucosidase Ethanol Extract 96% *Red Ginger* (*Zingiber officinale* Roscoe.)
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Drying is the most important step in maintaining the stability of compounds in simplicia. Through the proper drying process, high quality simplicia is produced can be stored for a long time and will never be changing in the content of the active ingredients. Red ginger is one of the plants of the *Zingiberaceae* family which contains various active compounds, *especially 6-gingerol, 6-shogaol, zingeron*, phenolics and flavonoids. Among the identified ingredients, 6-gingerol was reported as the most abundant active compound in *ginger*, with various pharmacological effects, including antioxidant, analgesic, anti-inflammatory and antidiabetic drug through the mechanism of inhibition of the enzyme *alpha glucosidase*. This research was conducted to determine the effect of drying method on the inhibitory activity of the *alpha-glucosidase* enzyme 96% ethanol extract of *red ginger* extracted with the help of ultrasonic waves. The results of phytochemical screening showed that red ginger had group compounds, flavonoids, alkaloids, saponins, tannins, and terpenoids. Testing the total phenol content in red ginger using a UV-Vis spectrophotometer with a wavelength of 742 nm using Folin-Ciocalteu reagent and gallic acid. The test results showed the total phenol yield of red ginger (*Zingiber officinale* Roscoe var. sunti Val.) in each extract from drying in direct sunlight was 155,81±4,39 mgGAE/g, covered with black cloth 132,16±5,48. mgGAE/g, aerated at room temperature 170,81±5,85 mgGAE/g, and with a dehydrator 178,16±4,88 mgGAE/g. Testing the total flavonoid content of red ginger using UV-Vis spectrophotometry with a wavelength of 440 nm using $AlCl_3$ and quercetin reagents. The test results showed that the total flavonoid extract of *red ginger* (*Zingiber officinale* Roscoe) from drying in direct sunlight was 3,55±0,06 mgQE/g, covered with black cloth 3,47±0,02 mgQE/g, aerated at room temperature. room 3,67±0,01 mgQE/g, and with dehydrator 3,90±0.04 mgQE/g. Testing of *alpha-glucosidase* inhibitory activity showed direct sunlight 5,084 ppm, black cloth 8,783 ppm, winds 4,929 ppm, and dehydrator 7,084 ppm. While acarbose as a positive control has an IC_{50} value of 3,387 ppm.

Keywords : Red Ginger, Simplicia drying method, UAE, IC_{50}, UV-Vis Spectrophotometry