ABSTRAK

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KARAKTERISTIK MINUMAN FUNGSIONAL DAUN KEJI BELING (*Strobilanthes crispus*) DENGAN PENAMBAHAN EKSTRAK JAHE (*Zingiber officinale*) DAN PEMANIS STEVIA
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(xix + 75 halaman: 34 gambar, 5 tabel, dan 30 lampiran)

Tanaman herbal seperti daun keji beling (*Strobilanthes crispus*) dan jahe (*Zingiber officinale*) telah dilaporkan memiliki sejumlah senyawa fitokimia yang memiliki aktivitas inhibisi α-glukosidase. Penelitian ini bertujuan untuk memanfaatkan daun keji beling dan ekstrak jahe dalam pembuatan minuman fungsional yang diharapkan memiliki aktivitas inhibisi terhadap α-glukosidase. Penelitian ini dibagi menjadi dua tahap, yaitu penelitian pendahuluan dan penelitian utama. Pada penelitian pendahuluan, daun keji beling dikeringkan menjadi teh, sedangkan jahe diesktraksi dengan metode maserasi menggunakan pelarut etanol *food grade* 96%. Teh daun keji beling dan ekstrak jahe diuji terhadap aktivitas inhibisi α-glukosidase, aktivitas antioksidan, total fenolik, dan total flavonoid. Pada penelitian utama, dilakukan pembuatan minuman fungsional dari seduhan teh daun keji beling yang diberi penambahan empat level ekstrak jahe (0,30 g, 0,45 g, 0,60 g, dan 0,75 g) dan tiga level pemanis stevia (2,0 g, 3,5 g, dan 5,0 g). Seluruh formulasi minuman diuji dengan uji organoleptik, derajat warna, pH, dan total padatan terlarut kemudian dilakukan penentuan formulasi minuman fungsional terpilih. Uji yang dilakukan pada minuman fungsional terpilih adalah aktivitas inhibisi α-glukosidase, kinetika inhibisi α-glukosidase, aktivitas antioksidan, total fenolik, dan total flavonoid. Karakteristik teh daun keji beling memiliki aktivitas inhibisi α-glukosidase sebesar 46,16% pada konsentrasi 30.000 ppm, aktivitas antioksidan dengan IC_{50} sebesar 93.136,05 ppm, serta kandungan total fenolik dan flavonoid sebesar 6,59 mg GAE/g dan 4,70 mg QE/g. Karakteristik ekstrak jahe memiliki aktivitas inhibisi α-glukosidase dengan IC_{50} sebesar 154,46 ppm, aktivitas antioksidan dengan IC_{50} sebesar 83,61 ppm, serta kandungan total fenolik dan flavonoid sebesar 224,44 mg GAE/g dan 43,24 mg QE/g. Formulasi minuman fungsional terpilih adalah minuman dengan penambahan 0,45 g ekstrak jahe dan 5,0 g stevia. Minuman fungsional terpilih memiliki aktivitas inhibisi α-glukosidase sebesar 48,26% pada konsentrasi 30.000 ppm dengan jenis inhibisi nonkompetitif, aktivitas antioksidan dengan IC_{50} sebesar 84.771,50 ppm, serta kandungan total fenolik dan flavonoid sebesar 7,02 mg GAE/g dan 5,88 mg QE/g.

Kata kunci: daun keji beling, ekstrak jahe, inhibisi α-glukosidase, antioksidan.
Referensi: 80 (1999-2018)

ABSTRACT

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CHARACTERISTIC OF KEJI BELING LEAVES (Strobilanthes crispus) FUNCTIONAL DRINK BY ADDING GINGER EXTRACT (Zingiber officinale) AND STEVIA SWEETENER

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(xix + 75 pages: 34 figures, 5 tables, dan 30 appendices)

Herbal plants such as keji beling leaves (Strobilanthes crispus) and ginger (Zingiber officinale) have been reported to have a number of phytochemical compounds that can inhibit α-glucosidase activity. This research was aimed to utilize the keji beling leaves and ginger extract in making functional drink that is expected to inhibit α-glucosidase activity. This research was divided into two stages, preliminary stages and main stages. In preliminary stages, keji beling leaves were dried into tea, while gingers were extracted using maceration method with 96% food grade ethanol. Activity of α-glucosidase inhibition, antioxidant activity, total phenolic, and total flavonoid content from keji beling tea leaves and ginger extract were analysed. In main stages, functional drinks were made using brewing keji beling tea leaves which are given four levels of ginger extract (0.30 g, 0.45 g, 0.60 g, and 0.75 g) and three levels of stevia sweetener (2.0 g, 3.5 g, and 5.0 g). All formulations were tested by organoleptic test, color degree, pH, and total soluble solids and then chosen functional beverage formulation was determined. The tests performed on selected functional drink were α-glucosidase inhibition activity, kinetics of α-glucosidase inhibition, antioxidant activity, total phenolic, and total flavonoid content. Characteristics of keji beling tea leaves had 46.16% of α-glucosidase inhibition at 30,000 ppm, IC_{50} value of antioxidant activity was 93,136.05 ppm, with total phenolic and flavonoid content were 6.59 mg GAE/g and 4.70 mg QE/g. Characteristics of ginger extract had activity of α-glucosidase inhibition with IC_{50} at 154.46 ppm, IC_{50} value of antioxidant activity was 83.61 ppm, with total phenolic and flavonoid content were 224.44 mg GAE/g and 43.24 mg QE/g. The selected functional drink formulation was a drink with the addition of 0.45 g of ginger extract and 5.0 g stevia sweetener. The selected functional drink had 48.26% of α-glucosidase inhibition at 30,000 ppm with noncompetitive inhibition types, IC_{50} value of antioxidant activity was 84,771.50 ppm, with total phenolic and flavonoid content were 7.02 mg GAE/g and 5.88 mg QE/g.

Keywords: *keji beling leaves, ginger extract, α-glucosidase inhibition, antioxidant.*

References: *80 (1999-2018)*