

ABSTRAK

Fanny Darmaja (00000005151)

AKTIVITAS INHIBISI α -GLUKOSIDASE PADA MINUMAN FUNGSIONAL KAYU MANIS (*Cinnamomum burmanii*) DAN ESKTRAK BROTOWALI (*Tinospora crispa*)

(xv + 70 halaman, 7 tabel, 29 gambar, dan 26 lampiran)

Minuman fungsional air seduhan kayu manis (*Cinnamomum burmanii*) dan ekstrak brotowali (*Tinospora crispa*) memiliki komponen bioaktif yang dapat berperan sebagai penghambat α -glukosidase. Tujuan umum dalam penelitian ini adalah untuk memanfaatkan ekstrak brotowali dan air seduhan kayu manis pada pembuatan minuman fungsional yang diharapkan memiliki kemampuan untuk menghambat α -glukosidase. Pada penelitian pendahuluan, brotowali diolah menjadi ekstrak dengan metode maserasi menggunakan pelarut etanol 96%, sedangkan kayu manis diolah menjadi air seduhan. Dilakukan pengujian terhadap inhibisi α -glukosidase, aktivitas antioksidan, total fenolik, dan total flavonoid pada ekstrak brotowali dan air seduhan kayu manis. Pada penelitian utama, dilakukan pembuatan minuman fungsional dengan menggunakan berat ekstrak yang terdiri dari tiga level (0,4; 0,5; dan 0,6) dan berat pemanis stevia yang terdiri dari empat level (2 gram, 3 gram, 4 gram, dan 5 gram). Semua sampel minuman fungsional dilakukan uji organoleptik (skoring dan hedonik), warna, pH, total padatan terlarut, aktivitas antioksidan, fenolik, flavonoid, inhibisi α -glukosidase, kinetika inhibisi α -glukosidase. Nilai IC_{50} inhibisi α -glukosidase pada ekstrak brotowali dan air seduhan kayu manis adalah sebesar 245,21 ppm dan 183.815 ppm, nilai aktivitas antioksidan sebesar 409,74 ppm dan 22994,09 ppm, nilai fenolik sebesar 40,70 mg GAE/g dan 11,71 mg GAE/g, serta nilai flavonoid sebesar 15,82 mg QE/g dan 7,57 mg QE/g. Minuman fungsional terpilih menggunakan berat ekstrak 0,6 gram dan berat stevia 2 gram. Dengan perlakuan ini, minuman fungsional memiliki nilai IC_{50} inhibisi α -glukosidase sebesar 51.784 ppm, aktivitas antioksidan sebesar 3479,27 ppm, total fenolik sebesar 66,02 mg GAE/g, total flavonoid sebesar 16,19 mg QE/g. Kinetika inhibisi α -glukosidase minuman fungsional ini termasuk dalam jenis inhibisi non-kompetitif.

Kata kunci : α -glukosidase, ekstrak brotowali, minuman fungsional, total fenolik, total flavonoid, aktivitas antioksidan

Referensi : 71 (1987-2018)

ABSTRACT

Fanny Darmaja (00000005151)

ACTIVITY OF α -GLUCOSIDASE INHIBITION ON FUNCTIONAL DRINK OF CINNAMON (*Cinnamomum burmanii*) AND BROTOWALI EXTRACT (*Tinospora crispa*)

(xv + 70 pages, 7 tables, 29 figures, and 26 appendices)

Functional drink of cinnamon (*Cinnamomum burmanii*) and brotowali extract (*Tinospora crispa*) has bioactive components that can act as α -glucosidase inhibitors. The main objective of this study was to utilize brotowali extract and cinnamon in the preparation of functional drink that are expected to have the ability to inhibit α -glucosidase. In preliminary stage, brotowali was processed into extract by maceration methods using ethanol 96% and the cinnamon was brewed using water. Brotowali extract and cinnamon were analyzed for α -glucosidase inhibition, antioxidant activity, total phenolic, and total flavonoids. In main research, functional drink are made using weight of extract of brotowali extract consisting of three levels (0.4; 0.5; and 0.6) and stevia concentration consisting of four levels (2 gram, 3 gram, 4 gram, and 5 gram). IC₅₀ of α -glucosidase inhibition activity brotowali extract and cinnamon is 245.21 ppm and 183815 ppm, antioxidant activity is 409.74 ppm and 22994.09 ppm, phenolic is 40.70 mg GAE/g and 11.71 mg GAE/g, also flavonoid is 15.82 mg QE/g and 7.57 mg QE/g. Functional drink was analyzed for organoleptic test (scoring and hedonic), color, pH, total dissolved solids, antioxidant activity, total phenolic, total flavonoids, α -glucosidase inhibition, inhibition kinetics. The selected functional drink is the one with 0.6 gram of brotowali extract and concentration stevia of 2 gram. With this treatment, the functional drink has IC₅₀ α -glucosidase inhibition of 51.784 ppm, antioxidant activity of 3479.27 ppm, phenolic total of 66.02 mg GAE/g, flavonoid total of 16.19 mg QE/g. The mechanism of α -glucosidase inhibition from the chosen functional drink is non-competitive inhibitor.

Keyword : α -glucosidase, brotowali extract, phenolic, functional drink, flavonoids, antioxidant activity

Reference : 71 (1987-2018)