

Analisis Fitokimia dan Uji In Vitro Ekstrak Etil Asetat dan Etanol *Bornetella oligospora* sebagai Inhibitor α -Glukosidase = Phytochemical and In Vitro Analysis Ethyl Acetate and Ethanol Extract of *Bornetella oligospora* as α -Glucosidase Inhibitor

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Abstrak

Latar Belakang: Prevalensi diabetes melitus (DM) di Indonesia tinggi. Salah satu jenis terapi yang sering digunakan yakni inhibitor -glukosidase. Akibat efek samping yang ditimbulkan obat sintetik dan sumber daya yang terbatas, berbagai studi menemukan tanaman herbal memiliki berbagai senyawa bioaktif dan aktivitas inhibisi -glukosidase agar menjadi obat alternatif DM. Salah satunya ialah makroalgae atau rumput laut. Di perairan Indonesia bagian timur terdapat alga hijau *Bornetella oligospora* yang berlimpah.

Tujuan: Menguji aktivitas inhibisi -glukosidase dan senyawa fitokimia yang terkandung pada ekstrak etil asetat dan etanol *Bornetella oligospora*.

Metode: Dilakukan uji fitokimia terhadap saponin, flavonoid, tanin, glikosida, triterpenoid, steroid, dan alkaloid; uji kromatografi lapis tipis; dan uji in vitro inhibisi -glukosidase pada ekstrak etil asetat dan etanol *Bornetella oligospora*

Hasil: Ekstrak etil asetat dan etanol *Bornetella oligospora* mengandung flavonoid, glikosida, triterpenoid, dan steroid. Uji kromatografi lapis tipis ekstrak etanol menunjukkan lima titik dengan Rf 0,545, 0,527, 0,5, 0,473, dan 0,154, sedangkan pada ekstrak etil asetat ditemukan dua titik dengan Rf 0,58 dan 0,64. Uji inhibisi -glukosidase menunjukkan nilai IC₅₀ ekstrak etanol 11,702 ppm dan ekstrak etil asetat 95,384 ppm.

Diskusi: Ekstrak etil asetat dan etanol *Bornetella oligospora* memiliki aktivitas inhibisi -glukosidase, meskipun tidak sebaik akarbosa. Kandungan fitokimia yang terkandung pada ekstrak juga memiliki efek antidiabetes.

Kesimpulan: Ekstrak *Bornetella oligospora* berpotensi menjadi agen antidiabetes

.....Background: Indonesia has a high prevalence of diabetes mellitus. One of the first line therapy of diabetes mellitus is -glucosidase inhibitors. Due to its side effects caused by syntethic drugs and limited sources, various studies have found that many herbal plants consist of bioactive compounds and exhibit -glucosidase inhibitory activity. One of which are macroalgae or seaweed. In the eastern Indonesian ocean, there is an abundant green algae called *Bornetella oligospora*.

Objective: To examine the inhibitory activity of -glucosidase and phytochemical compounds in ethyl acetate and ethanol extract of *Bornetella oligospora*.

Methods: A phytochemical tests on saponins, flavonoids, tannins, glycosides, triterpenoids, steroids, and alkaloids; thin layer chromatography test; and -glucosidase inhibition assay was carried out on ethyl acetate and ethanol extract of *Bornetella*

oligospora.

Results: The phytochemical components of ethanol and ethyl acetate extract of *Bornetella oligospora* are flavonoids, glycosides, triterpenoids, and steroids. The thin layer chromatography test showed ethanol extract have five spots with Rf 0,545, 0,527, 0,5, 0,473, and 0,154, while the ethyl acetate extract has two spots with Rf 0.58 and 0.64. The α -glucosidase inhibition assay showed IC₅₀ values of the ethanol extract was 11,702 ppm and ethyl acetate extract was 95,384 ppm.

Discussion: Both ethanol and ethyl acetate extracts of *Bornetella oligospora* showed α -glucosidase inhibitory activity, although they are not as good as acarbose. The phytochemical content of the extract also has an antidiabetic effect.

Conclusion: *Bornetella oligospora* extract has the potential to be an antidiabetic agent