

INTISARI

PENGARUH SUHU DAN WAKTU PENDINGERIAN TERHADAP AKTIVITAS ANTIDIABETES RUMPUT LAUT COKELAT (*Sargassum hystrix*)

Sargassum hystrix diketahui mengandung senyawa polifenol yang dapat berperan sebagai anti-diabetes. Penelitian ini bertujuan untuk menentukan suhu dan waktu pengeringan yang optimal untuk menjaga aktivitas antidiabetes *Sargassum hystrix*. *S. hystrix* dikeringkan pada suhu 40°C, 50°C dan 60°C selama 4, 6, dan 8 jam. Ekstrak *S. hystrix* diuji total fenolik, florotanin dan aktivitas penghambatan α -glukosidase. Ekstrak *S. hystrix* dengan aktivitas inhibisi tertinggi diidentifikasi kandungan senyawanya menggunakan *Gas Chromatography-Mass Spectrometry* (GC-MS). Hasil menunjukkan kandungan fenolik tertinggi pada suhu pengeringan 40°C selama 4 jam (80,75 \pm 0,05 mgGAE/g) dan terkecil pada suhu pengeringan 60°C selama 8 jam (58,95 \pm 0,20 mgGAE/g). Kandungan florotanin tertinggi pada suhu pengeringan 40°C selama 4 jam (53.450 \pm 441.36 ppm) dan terkecil pada suhu pengeringan 60°C selama 8 jam (18.237 \pm 83.86 ppm). Aktivitas penghambatan enzim α -glukosidase yang melebihi akarbosa (IC₅₀ = 271.54 \pm 39.71 ppm) yaitu suhu pengeringan 40°C selama 4 jam (IC₅₀ = 42.87 \pm 3.07 ppm). Senyawa yang diduga berperan sebagai penghambat enzim α -glukosidase pada ekstrak *S. hystrix* (A1B1) dari analisis GC-MS antara lain β -Asarone, 3,4-Dihydroxymandelic acid, 4TMS derivative, Homovanillyl alcohol, 2TMS derivative, 3-(4-Hydroxy-3-methoxyphenyl)propionic acid, 2TMS derivative, 2,3-Dihydroxybenzoic acid, 3TMS derivative, 1-Monopalmitin, 2TMS derivative, 7-Hexadecenoic acid, methyl ester, (Z)-, 9-Octadecenoic acid (Z)-, 2-hydroxyethyl est, Oleic acid, butyl ester, 4-Hydroxybenzoic acid, 2TBDMS derivative, Diallyl sulfide dan Protocatechoic acid, 3TMS derivative. Hasil ini menunjukkan ekstrak *S. hystrix* (A1B1) potensial sebagai penghambat enzim α -glukosidase.

Kata kunci : *Sargassum hystrix*, polifenol, florotanin, aktivitas penghambat enzim α -glukosidase, IC₅₀

ABSTRACT

INFLUENCE OF TEMPERATURE AND DRYING TIME ON ANTIDIABETICS ACTIVITY OF BROWN ALGAE (*Sargassum hystrix*)

Sargassum hystrix is known to contain polyphenol compounds that can act as anti-diabetic. This study aims to determine the optimal drying temperature and time to maintain the antidiabetic activity of *Sargassum hystrix*. *S. hystrix* was dried at 40°C, 50°C and 60°C for 4, 6, and 8 hours. *S. hystrix* extracts were tested for total phenolic, phlorotannin and α -glucosidase inhibitory activities. The *S. hystrix* extract with the highest inhibitory activity was identified for its compound content using *Gas Chromatography-Mass Spectrometry* (GC-MS). The results showed the highest phenolic content at 40°C drying temperature for 4 hours (80.75±0.05 mgGAE/g) and the smallest at 60°C drying temperature for 8 hours (58.95±0.20 mgGAE/g). The phlorotannin content was highest at 40°C for 4 hours (53,450±441.36 ppm) and smallest at 60°C for 8 hours (18,237±83.86 ppm). The α -glucosidase enzyme inhibitory activity that exceeds acarbose (IC₅₀ = 271.54 ± 39.71 ppm) is drying temperature 40°C for 4 hours (IC₅₀ = 42.87 ± 3.07 ppm). Compounds that are thought to play a role as inhibitors of α -glucosidase enzyme in *S. hystrix* extract (A1B1) from GC-MS analysis include β -Asarone, 3,4-Dihydroxymandelic acid, 4TMS derivative, Homovanillyl alcohol, 2TMS derivative, 3-(4-Hydroxy-3-methoxyphenyl)propionic acid, 2TMS derivative, 2,3-Dihydroxybenzoic acid, 3TMS derivative, 1-Monopalmitin, 2TMS derivative, 7-Hexadecenoic acid, methyl ester, (Z)-, 9-Octadecenoic acid (Z)-, 2-hydroxyethyl est, Oleic acid, butyl ester, 4-Hydroxybenzoic acid, 2TBDMS derivative, Diallyl sulfide and Protocatechoic acid, 3TMS derivative. These results indicate that *S. hystrix* extract (A1B1) has potential as an inhibitor of α -glucosidase.

Keywords: *Sargassum hystrix*, polyphenols, phlorotannin, inhibitor α -glucosidase, IC₅₀