

Kholidiyah Sindy Salma NPM. 220351100041 “Identifikasi Senyawa Bioaktif Dari Lamun (*Thalassia* Sp.) Sebagai Kandidat Antidiabetes Melalui Penghambatan α -Amilase Dengan Pendekatan *In Silico*”, dibawah bimbingan Bapak **AB. Chandra, M.Si**

ABSTRAK

Lamun (*Thalassia* sp.) memiliki potensi yang sangat besar, baik dari segi ekologis dan ekonomis maupun farmakologis salah satunya sebagai antidiabetes. Penelitian ini bertujuan untuk mengidentifikasi senyawa bioaktif dari ekstrak lamun sebagai kandidat obat antidiabetes melalui uji *in silico*. Sampel *Thalassia* sp. diperoleh langsung dari Perairan Nepa, Desa Nepa Kecamatan Banyuates, Sampang. Analisis sampel dilaksanakan dari bulan September sampai November 2025 di Laboratorium Biologi Laut, Universitas Trunodjoyo Madura. Penelitian dilakukan dengan menganalisis kadar proksimat, ekstraksi, dan uji *In Silico* menggunakan inhibitor α -amilase. Hasil identifikasi lamun jenis *Thalassia hemprichii* dengan kondisi parameter kualitas air kadar oksigen terlarut, pH, salinitas, dan suhu berturut turut $7,1 \pm 0,058$ mg/L; $8,2 \pm 0,009$; $33,7 \pm 0,33$ ppt; dan $34,3 \pm 0,033^\circ\text{C}$. Adapun nilai rendemen lamun (*Thalassia hemprichii*) sebesar 10,09%. Hasil analisis proksimat meliputi air, abu, serat kasar, protein, dan karbohidrat dengan persentase masing masing pada sampel kering sebesar $14,42 \pm 0,40$; $24,14 \pm 3,25$; $58,35 \pm 6,01$; $0,29 \pm 0,004$; 2,79. Terdapat 14 senyawa hasil kromatogram GCMS ekstrak etanol lamun (*Thalassia hemprichii*) diantaranya *Pterin6-carboxylic acid*, *Pentadecanoic acid 14-methyl-methyl ester*, dan *17-octadecanoic acid methyl ester*. Senyawa *Pterin-6-carboxylic acid* berpotensi menjadi kandidat antidiabetes melalui penghambatan α -amilase dengan nilai *binding affinity* sebesar -7,0 kcal/mol. Kontrol positif akardose menunjukkan nilai *binding affinity* sebesar -7,3 kcal/mol.

Kata kunci: α -amilase, *In Silico*, Senyawa bioaktif, *Thalassia hemprichii*

Kholidiyah Sindy Salma NPM. 220351100041 Identification of Bioactive Compounds from Seagrass (*Thalassia* Sp.) as Antidiabetic Candidates Through Inhibition of α -Amylase Using an In Silico Approach, Under the Guidance of **AB. Chandra, M.Si**

ABSTRACT

Seagrass (*Thalassia* sp.) has enormous potential, both ecologically and economically as well as pharmacologically, one of which is as an antidiabetic. This study aims to identify bioactive compounds from seagrass extracts as antidiabetic drug candidates through in silico tests. *Thalassia* sp. samples were obtained directly from Nepa Waters, Nepa Village, Banyuates District, Sampang. Sample analysis was carried out from September to November 2025 at the Marine Biology Laboratory, Trunodjoyo University, Madura. The study was conducted by analyzing proximate levels, extraction, and *In Silico* tests using α -amylase inhibitors. The results of the identification of *Thalassia hemprichii* seagrass with water quality parameters of dissolved oxygen levels, pH, salinity, and temperature were 7.1 ± 0.058 mg/L; 8.2 ± 0.009 ; 33.7 ± 0.33 ppt; and $34.3 \pm 0.033^\circ\text{C}$, respectively. The yield value of seagrass (*Thalassia hemprichii*) was 10.09%. The results of proximate analysis included water, ash, crude fiber, protein, and carbohydrates with the respective percentages in the dry sample of 14.42 ± 0.40 ; 24.14 ± 3.25 ; 58.35 ± 6.01 ; 0.29 ± 0.004 ; 2.79. There were 14 compounds resulting from the GCMS chromatogram of seagrass (*Thalassia hemprichii*) ethanol extract including *Pterin6-carboxylic acid*, *Pentadecanoic acid 14-methyl-methyl ester*, and *17-octadecanoic acid methyl ester*. The *Pterin-6-carboxylic acid* compound has the potential to be an antidiabetic candidate through inhibition of α -amylase with a binding affinity value of -7.0 kcal/mol. The positive control for acarbose showed a binding affinity value of -7.3 kcal/mol.

Keywords: α -amilase, In Silico, Bioactive compounds, *Thalassia hemprichii*.