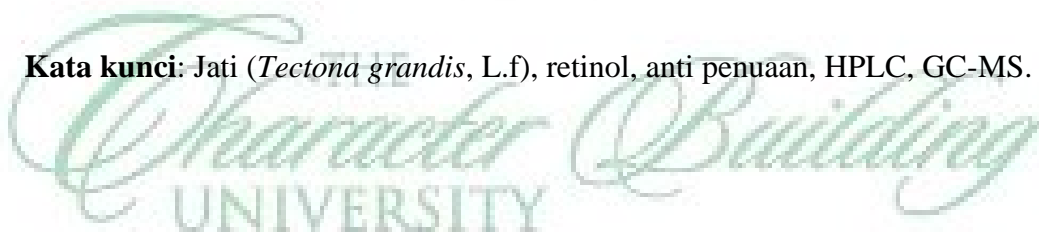# ABSTRAK

CINDY PITALOKA, NIM 4203220037 (2024), Analisis Kandungan Retinol pada Organ Tanaman Jati (*Tectona grandis*, L.f).

Penuaan merupakan penurunan bertahap kemampuan jaringan untuk memperbaiki dan mempertahankan struktur dan fungsi fisiologis normalnya. Salah satu bahan aktif antiaging adalah retinol (Vitamin A). Tujuan Penelitian ini untuk menganalisis kandungan retinol pada organ tanaman jati (*Tectona grandis,* L.f) yang meliputi daun muda, daun tua, bunga, dan buah menggunakan HPLC (*High Performance Liquid Chromatography*) dan GC-MS (*Gass Chromatography – Mass Spectrometry*). Sampel diekstraksi menggunakan metode soxhletasi dengan larutan metanol 96%. Analisis HPLC dilakukan dengan uji selektivitas, uji linearitas, dan uji kandungan sampel. Metode GC-MS dianalisis menggunakan software PubChem dan PASS ONLINE. Hasil analisis HPLC (*High Performance Liquid Chromatography*) didapatkan persamaan garis linear standar retinol adalah y = 3E + 06x + 22661 dengan nilai koefisien korelasi (r^2) = 0,99. Kandungan retinol pada daun muda rata-rata sebanyak 24,62% dan rata-rata luas area sebesar 179317,666, kandungan retinol pada daun tua rata-rata sebanyak 29,67% dan rata-rata luas area sebesar 260495,333, kandungan retinol pada bunga rata-rata sebanyak 7,11% dan rata-rata luas area sebesar 149371,333, kandungan retinol pada buah rata-rata sebanyak 0,66% dan rata-rata luas area sebesar 5303,333. Sedangkan hasil analisis GC-MS (*Gas Chromatography - Mass Spectrometry*) yang dilanjutkan dengan PASS ONLINE tidak ditemukan senyawa retinol asli namun didapatkan senyawa seperti D-Homoandrostane, (5.alpha.,13.alpha.); gamma.-Sitosterol; androstane, (5.beta.); stigmast-4-en-3-one; stigmasterone; dan prasterone memiliki nilai Pa > 0,5 yang mekanismenya sebagai penghambat retinol O-fatty-acyltransferase. Inhibitor ini dapat digunakan untuk meningkatkan kadar retinol aktif dimana peningkatan aktivitas retinoid diinginkan, seperti dalam beberapa jenis perawatan kulit atau terapi anti penuaan.

Kata kunci: Jati (*Tectona grandis*, L.f), retinol, anti penuaan, HPLC, GC-MS.

ABSTRACT

CINDY PITALOKA, NIM 4203220037 (2024), Analysis of Retinol Content in Teak Plant Organs (*Tectona grandis*, L.f).

Aging was the gradual decline in tissues ability to repair and sustain their normal physiological structure and function. One of the active antiaging ingredients was retinol (Vitamin A). The aim of this research was to analyze the retinol content in teak plant organs (*Tectona grandis*, L.f), which included young leaves, old leaves, flowers, and fruit, using HPLC (High Performance Liquid Chromatography) and GC-MS (Gas Chromatography - Mass Spectrometry). Samples were extracted using the soxhletation method with 96% methanol solution. HPLC analysis was carried out using selectivity tests, linearity tests, and sample content tests. GC-MS analysis was carried out using PubChem and PASS ONLINE software. HPLC analysis results (High Performance Liquid Chromatography) obtained the standard linear equation of retinol as $y = 3E + 06x + 22661$ with a correlation coefficient value (r^2) = 0.99. The retinol content in young leaves averaged 24.62%, and the average area was 179317.666; the retinol content in old leaves averaged 29.67%, and the average area was 260495.333; the retinol content in flowers averaged 7.11%, and the average area was 149371.333; the retinol content in the fruit was an average of 0.66%, and the average area was 5303.333. Meanwhile, from the results of GC-MS analysis (Gas Chromatography - Mass Spectrometry) followed by PASS ONLINE, no real retinol compounds were founded, but compounds such as D-Homoandrostane, (5.alpha.,13.alpha.); gamma.-Sitosterol; androstane, (5.beta.); stigmast-4-en-3-one; stigmasterone; and prasterone had a Pa value > 0.5, whose mechanism was as an inhibitor of retinol O-fatty-acyltransferase. These inhibitors could have been used to increase active retinol levels where increased retinoid activity was desired, such as in some types of skin care or antiaging therapy.

Keywords: Teak (*Tectona grandis*, L.f), retinol, antiaging, HPLC, GC-MS.