

**ISOLASI DAN KARAKTERISASI METABOLIT SEKUNDER DARI FRAKSI NON-
POLAR KAYU BATANG ANDALIMAN (*Zathoxylum acanthopodium DC.*) ASAL
SUMATERA UTARA**

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Diajukan untuk memenuhi persyaratan memperoleh gelar Sarjana Sains

Program Studi Kimia



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**ISOLASI DAN KARAKTERISASI METABOLIT SEKUNDER DARI FRAKSI
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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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HALAMAN PENGESAHAN
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ABSTRAK

Tanaman andaliman (*Zanthoxylum acanthopodium* DC.) merupakan salah satu tanaman genus *Zanthoxylum* yang sangat melimpah di Sumatera Utara. Tanaman andaliman ini telah dimanfaatkan masyarakat secara tradisional untuk mengobati berbagai macam penyakit. Beberapa metabolit sekunder yang dilaporkan terkandung dalam tanaman genus *Zanthoxylum* diantaranya kumarin, flavonoid, lignan, terpenoid, steroid, amida, alkaloid dan turunan ftalat. Perbedaan letak geografis dan ekosistem tempat tumbuh suatu tanaman dapat menyebabkan perbedaan tipe metabolit sekundernya. Oleh karena itu, penelitian mengenai isolasi metabolit sekunder tanaman andaliman asal Sumatera Utara menarik untuk dilakukan. Tujuan dari penelitian ini adalah untuk dapat mengisolasi dan menentukan struktur metabolit sekunder yang terkandung dalam fraksi nonpolar kayu batang andaliman asal Sumatera Utara. Metode yang dilakukan pada penelitian ini meliputi ekstraksi dan fraksinasi menggunakan pelarut *n*-heksana, kloroform dan etil asetat secara berturut-turut. Fraksi *n*-heksana selanjutnya dipisahkan dan dimurnikan dengan menggunakan Kromatografi Cair Vakum (KCV), Kromatografi Kolom Gravitasi (KKG) dan dimonitoring menggunakan Kromatografi Lapis Tipis (KLT). Penentuan struktur isolat dilakukan dengan menggunakan spektroskopi *Nuclear Magnetic Resonance* (NMR) dan spektroskopi *Fourier Transform Infra Red* (FTIR). Pada penelitian ini diperoleh isolat murni berupa minyak berwarna kuning sebanyak 466,1 mg. Berdasarkan hasil analisis NMR dan FTIR serta perbandingan data spektroskopi dengan literatur, isolat diidentifikasi sebagai turunan ftalat, yaitu di(2-etilheksil)ftalat.

Kata Kunci : Andaliman, kromatografi, *Nuclear Magnetic Resonance*, *Zanthoxylum*, di(2-etilheksil)ftalat.

ABSTRACT

Andaliman (Zanthoxylum acanthopodium DC.) a plant belong to the Zanthoxylum genus is widely found in North Sumatra. Andaliman has been traditionally used by local people to treat various diseases. Several secondary metabolites reported from the genus Zanthoxylum include coumarins, flavonoids, lignans, terpenoids, steroids, amides, alkaloids and phthalate derivatives. Differences in geographical location and the ecosystem where a plant grows can result in different types of secondary metabolites. Therefore, it is interesting to conduct research on the isolation of secondary metabolites from Andaliman originating from North Sumatra. This study aimed to isolate and determine the structure of the secondary metabolites contained in the nonpolar fraction of the Andaliman stem wood from North Sumatra. The methods used in this study included extraction and fractionation using n-hexane, chloroform, and ethyl acetate respectively. The n-hexane fraction was then separated and purified using vacuum liquid chromatography (VLC), gravity column chromatography (GCC) and monitored using thin layer chromatography (TLC). The determination of structure was carried out using Nuclear Magnetic Resonance (NMR) and Fourier Transform Infra Red (FTIR) spectroscopies. The pure isolate was obtained as a yellow oil of 466.1 mg. Based on FTIR and NMR analyses as well as a comparison of spectroscopic data with literature, the isolate was identified as a phthalate derivative, namely di(2-ethylhexyl)phthalate.

Keywords : *Andaliman, Chromatography, Nuclear Magnetic Resonance, Zanthoxylum, di(2-ethylhexyl)phthalate.*

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