

**PROFIL FISIKOKIMIA DAN AKTIVITAS ANTIOKSIDAN DARI
EKSTRAK N-HEKSANA DAUN SUKUN (*Artocarpus communis*)
ASAL JAWA BARAT**

SKRIPSI

Diajukan untuk memenuhi sebagian dari syarat memperoleh gelar Sarjana Sains
Program Studi Kimia



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2019**

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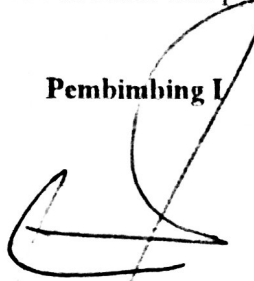
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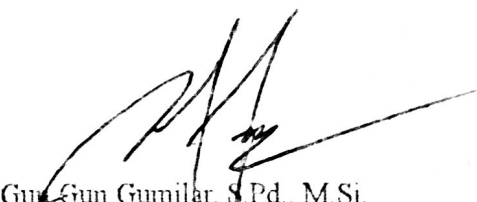
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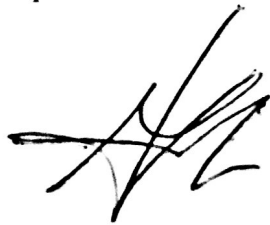
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ABSTRAK

Daun tumbuhan sukun (*Artocarpus communis*) sejak dahulu telah digunakan oleh sebagian masyarakat Indonesia sebagai bahan baku obat tradisional untuk menyembuhkan beberapa penyakit. Khasiat yang diperoleh dengan penggunaan obat tradisional berbahan daun sukun tidak lain berasal dari senyawa kimia berupa metabolit sekunder yang dikandungnya yaitu, menurut beberapa literatur adalah dari golongan terpenoid, flavonoid serta stilbenoid. Tujuan penelitian ini adalah untuk mengetahui mutu dan keamanan simplisia daun sukun melalui karakterisasi simplisia, mengetahui golongan metabolit sekunder dan jumlah komponen yang ada melalui karakterisasi fisikokimia ekstrak daun sukun, serta mengetahui aktivitas antioksidan dari ekstrak daun sukun. Karakterisasi yang dilakukan meliputi beberapa parameter uji, antara lain uji kadar air, uji kadar abu total, uji kadar abu tak larut asam, serta uji cemaran logam. Untuk karakterisasi fisikokimia dan uji aktivitas antioksidan pada daun sukun dilakukan terlebih dahulu pengekstraksian dengan metode soxhlet menggunakan pelarut n-heksana. Karakterisasi fisikokimia pada ekstrak n-heksana daun sukun dilakukan dengan beberapa metode, yaitu *Fourier-Transform Infrared Spectroscopy* (FTIR) dan Kromatografi Lapis Tipis (KLT). Untuk uji aktivitas antioksidan ekstrak daun sukun, dilakukan dengan menggunakan metode 1,1-difenil-2-pikrilhidrazil (DPPH). Pada karakterisasi simplisia daun sukun diperoleh kadar air sebesar $10,23 \pm 0,06$ %, kadar abu total sebesar $21,09 \pm 0,96$ %, dan kadar abu tak larut asam sebesar $12,85 \pm 3,46$ %. Pada uji cemaran logam diperoleh kadar Pb sebesar 0,0585 mg/kg, kadar Cd sebesar 0,0063 mg/kg, kadar As sebesar 0,8425 mg/kg, serta kadar Hg sebesar 0,0002 mg/kg. Hasil analisis spektrum FTIR dibandingkan dengan literatur menunjukkan bahwa ekstrak n-heksana daun sukun mengandung senyawa metabolit sekunder dari golongan terpenoid. Hasil tersebut didukung dengan keberadaan serapan gugus fungsi khas untuk golongan terpenoid, antara lain gugus fungsi O-H, C-H sp^3 , C=O, C=C, dan C-H *gem dimethyl*. Hasil analisis KLT memperlihatkan pelarut n-heksana:etil asetat 7:3 dan metanol 100% adalah pelarut paling efektif pada tiap sistem KLT karena dapat memisahkan jumlah komponen pada ekstrak terbanyak, yaitu sekurang-kurangnya empat komponen senyawa dengan nilai Rf 0,95; 0,83; 0,73; 0,63, serta nilai Rf 0,68; 0,55; 0,43; 0,23. Hasil uji aktivitas antioksidan ekstrak n-heksana daun sukun menunjukkan nilai IC_{50} sebesar 72,9479 ppm. Hasil penelitian secara keseluruhan menunjukkan bahwa daun sukun berpotensi digunakan sebagai bahan baku obat tradisional yang aman dan bermanfaat untuk dikonsumsi.

Kata kunci: *Artocarpus communis*, karakterisasi, analisis FTIR, KLT, uji antioksidan

ABSTRACT

Since old time breadfruit leaves have used as traditional medicine ingredient for curing some diseases by several Indonesians. Efficacy obtained by the use of traditional medicine made from breadfruit leaves is from chemical compounds in the form of secondary metabolites they contain, according to some literatures are from terpenoid, flavonoid, and stilbenoid group. The aim of present study was to determine quality and safety of simplicia of breadfruit leaves by characterization, to determine secondary metabolite compound group and number of compound component in extract of breadfruit leaves by physicochemical characterization, and to determine antioxidant activity of extract of breadfruit leaves. Characterization that have been done encompassed some test parameters that were water content test, total ash content test, ash insoluble acid test, and metal contamination test. For physicochemical characterization and activity test, the breadfruit leaves was extracted by soxhlet extraction method using n-hexane as solvent. Physicochemical characterization of n-hexane extract of breadfruit leaves was done by some methods that were Fourier-Transform Infrared Spectroscopy (FTIR) and Thin Layer Chromatography (TLC). For antioxidant activity test of breadfruit leaves extract, the test that had been done was 1,1-diphenyl-2-picrylhydrazyl (DPPH) method. Characterization results of simplicia of breadfruit leaves were obtained water content $10,23 \pm 0,06$ %, total ash content $21,09 \pm 0,96$ %, and ash insoluble acid content $12,85 \pm 3,46$ %. Metal contaminant results were obtained Pb content 0,0585 mg/kg, Cd content 0,0063 mg/kg, As content 0,8425 mg/kg, and Hg content 0,0002 mg/kg. FTIR spectrum analysis result compared with literature showed that n-hexane extract of breadfruit leaves contained secondary metabolite compound of terpenoid group. That result supported by the presence of absorptions from typical functional groups of terpenoid group which were functional group of O-H, C-H sp^3 , C=O, C=C, C-H gem dimethyl. TLC analysis result showed n-hexane-ethyl acetate 7:3 solvent and methanol 100% were the most effective solvent of each TLC system because they could separate the highest number of extract component that was at least four components with Rf values 0,95; 0,83; 0,73; 0,63 and Rf values 0,68; 0,55; 0,43; 0,23. Antioxidant activity test result of n-hexane extract of breadfruit leaves showed IC_{50} value 72.9479 ppm. Overall results of this study showed breadfruit leaves have potency for using as safety and efficacy traditional medicine ingredient to consume.

Keywords: *Artocarpus communis*, characterization, FTIR analysis, TLC analysis, antioxidant test

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