ABSTRAK

Cabe Jawa *(Piper retrofractum* Vahl.) merupakan salah satu tanaman yang termasuk dalam genus *Piper* pada famili *piperaceae*. Secara umum, tanaman genus *piper* diketahui memiliki aktivitas antimikroba, antifungi dan antiinflamasi. Penelitian ini dilakukan proses pemisahan metabolit sekunder serta penentuan aktivitas antioksidan dan antibakteri ekstrak n-heksana buah cabe jawa asal Jawa Barat. Proses pemisahan metabolit sekunder dimulai dari ekstraksi dengan pelarut n-heksana yang dilanjutkan dengan proses pemurnian menggunakan berbagai teknik kromatografi yang meliputi Kromatografi Lapis Tipis (KLT), Kromatografi Cair Vakum (KCV) dan Kromatografi radial. Penentuan aktivitas antioksidan menggunakan metode *2,2-diphenyl-1-picrylhydrazyl* (DPPH) dan aktivitas antibakteri dilakukan dengan metode difusi agar terhadap bakteri *Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa* dan *Streptococcus mutans.* Hasil pemisahan terhadap ekstrak n-heksana buah cabe jawa diperoleh dua senyawa murni piperin dan metil piperat yang dianalisis menggunakan NMR proton. Hasil uji aktivitas antioksidan menunjukkan bahwa ekstrak n-heksana buah cabe jawa mampu menghambat radikal bebas pada konsentrasi 689,81 ppm. Adapun hasil uji aktivitas antibakteri menunjukkan bahwa ekstrak n-heksana buah cabe jawa mampu menghambat kerja bakteri *Staphylococcus aureus* dengan diameter hambat sebesar 5,66 - 8,7 mm pada konsentrasi ekstrak n-heksana buah cabe jawa 10 % dan 80% serta pada bakteri *Streptococcus mutans* menghambat pada konsentrasi 80% dengan diameter hambat 4,46 mm. Berdasarkan pengklasifikasian daya hambat antibakteri, <10 mm dikategorikan sebagai antibakteri sedang.

Kata kunci : *Piper retrofractum*, ekstrak n-heksana, kromatografi, antioksidan, antibakteri.

Widi Sri Mulyani, 2017
ISOLASI METABOLIT SEKUNDER EKSTRAK n-HEKSANA BUAH CABE JAWA (Piper retrofractum Vahl.) ASAL JAWA BARAT SERTA AKTIVITAS ANTIOKSIDAN DAN ANTIBAKTERI
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ABSTRACT

Cabe Jawa (Piper retrofractum Vahl.) categorised on Piper's genus at family piperaceae. Piper's genus commonly reported to it's function as antimicrobial, antifungi and antiinflamation. The aim of this study was to obtain information on the isolation of secondary metabolites from cabe jawa fruits n-hexane extract and the determination of the antioxidant and antibacterial activity. The study consists the isolation of the secondary metabolite, determination of antioxidant activity and the determination of antibacterial activity. The isolation stage begin with the maceration method with n-hexane solvent, the continues purification stage of fractination compounds is done by using several chromatography techniques including Thin Layer Chromatography (TLC),Vacuum Liquid Chromatography (VLC) and radial Chromatography. The determination of antioxidant activity is done by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) method and antibacterial activity of extract was tested against Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa and Streptococcus mutans were determined by agar well difusson method. Piperine an alkaloids compound and metil piperate was isolated from this extract. The structure of this compound was determined using spectroscopic 1H NMR. Antioxidant activity analysis showed that n-hexane extract able to inhibit the half of the total free radical at concentration 689,81 ppm and the result of antibacterial activity test showed that n-hexane extract was active against pathogene bacteria Staphylococcus aureus with diameter of clear zone 5,66 - 8,7 mm in concentration 10 % - 80% and the extract was also effective against Streptococcus mutans at concentration 80% with diameter clear zone of 4,46 mm. Based on the diameter clear zone's classification <10mm, it's classified that cabe jawa fruits n-hexane extract categorised as a moderate antibacterial.

***Keywords** : Piper retrofractum, n-hexane extract, chromatography, antioxidant, antibacterial.*