

**OPTIMASI FORMULA EMULGEL FRAKSI ETIL ASETAT
RIMPANG JAHE (*Zingiber officinale* Rosc.) YANG DIINDUKSI FUNGI
MIKORIZA ARBUSKULA SEBAGAI ANTIINFLAMASI
DENGAN METODE DESAIN FAKTORIAL**

TESIS



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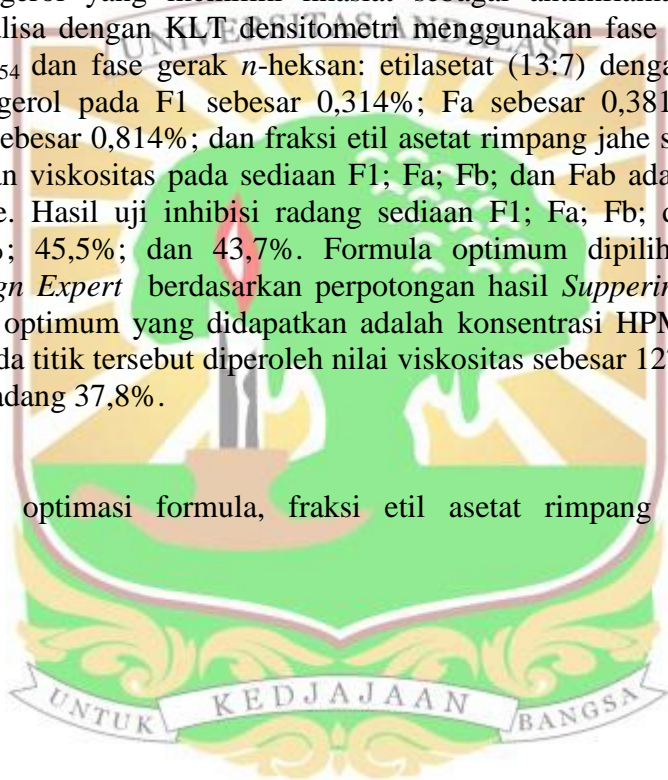
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ABSTRAK

Telah dilakukan penelitian optimasi formula emulgel fraksi etil asetat rimpang jahe (*Zingiber officinale* Rosc.) yang diinduksi Fungi Mikoriza Arbuskula (FMA) sebagai antiinflamasi dengan metode desain faktorial. Penelitian ini bertujuan menetapkan konsentrasi HPMC dan fraksi etil asetat rimpang jahe pada formula optimum emulgel yang memberikan nilai viskositas dan efek inhibisi radang yang diharapkan. Konsentrasi HPMC yang digunakan adalah 0,75% dan 2%, dan konsentrasi fraksi etil asetat rimpang jahe yang digunakan 8% dan 16%. Fraksi etil asetat rimpang jahe mengandung senyawa utama (6)-gingerol yang memiliki khasiat sebagai antiinflamasi. Kadar (6)-gingerol dianalisa dengan KLT densitometri menggunakan fase diam plat KLT silica gel GF₂₅₄ dan fase gerak *n*-heksan: etilasetat (13:7) dengan nilai R_f 0,3. Kadar (6)-gingerol pada F1 sebesar 0,314%; Fa sebesar 0,381%; Fb sebesar 0,823%; Fab sebesar 0,814%; dan fraksi etil asetat rimpang jahe sebesar 3,670%. Hasil pengujian viskositas pada sediaan F1; Fa; Fb; dan Fab adalah 10; 200; 5; dan 150 Poise. Hasil uji inhibisi radang sediaan F1; Fa; Fb; dan Fab adalah 31,6%; 31,3%; 45,5%; dan 43,7%. Formula optimum dipilih menggunakan program *Design Expert* berdasarkan perpotongan hasil *Superimposed contour plot*. Formula optimum yang didapatkan adalah konsentrasi HPMC 2% dan zat aktif 12%. Pada titik tersebut diperoleh nilai viskositas sebesar 127,129 Poise dan efek inhibisi radang 37,8%.

Kata kunci : optimasi formula, fraksi etil asetat rimpang jahe, emulgel, antiinflamasi



ABSTRACT

A research about optimization formulation of emulgel ethyl acetate fraction of ginger (*Zingiber officinale* Rosc.) induced with Arbuscular Mycorrhizal Fungi (AMF) as an anti-inflammatory with factorial design method had been investigated. This study is aimed to determine the concentration of HPMC and the fraction of ethyl acetate of ginger on emulgel optimum formula that gives viscosity and inflammation inhibition effect that expected. The concentration of HPMC was 0.75% and 2%, and the concentration of fraction of ethyl acetate of ginger rhizome was 8% and 16%. The main compound of fraction of ethyl acetate of ginger rhizome was (6)-gingerol which has ability as anti-inflammatory. The quantity of (6)-gingerol was analyzed by using TLC densitometry, stationary phase silica gel GF254 TLC plate and mobile phase n-hexane: ethyl acetate (13:7) with Rf value of 0.3. The quantity of (6)-gingerol in F1 was 0.314%; Fa 0.381%; Fb 0.823%; Fab 0.814%; and the fraction of ethyl acetate of ginger rhizome 3.670%. The results of viscosity test on dosage F1; Fa; fb; and Fab respectively were 10; 200; 5; and 150 Poise. The result of inflammation inhibition test on F1; Fa; fb; and Fab were 31.6%; 31.3%; 45.5%; and 43.7%. The optimum formula had been selected using the program Design Expert is based on the intersection of the results Superimposed contour plot. Then, the optimum formula was 2% concentration of HPMC and 12% of active substances. At that point, the viscosity values obtained at 127.129 Poise and inhibitory effect on inflammation 37.8%.

Keywords: optimization formula, ethyl acetate fraction of ginger, emulgel, antiinflammatory

