INTISARI

MARDIYANTI, D., 2019. OPTIMASI FORMULA SABUN PADAT ANTIBAKTERI EKSTRAK ETANOL BUAH PARE (*Momordica charantia L.*) DENGAN VARIASI VIRGIN COCONUT OIL (VCO) DAN COCOAMIDOPROPYL BETAINE, TESIS, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Salah satu tanaman yang berpotensi sebagai antibakteri adalah buah pare. VCO mempunyai sifat mudah diabsorpsi kulit sehingga kulit menjadi lembab. *Betaine* digunakan dalam pembuatan sabun untuk menghasilkan busa yang melimpah. Optimasi VCO dan *betaine* bertujuan untuk memperoleh sabun yang lembab, menghasilkan busa banyak, dan tidak mengiritasi kulit. Tujuan penelitian ini adalah optimasi formula sabun padat ekstrak buah pare dengan variasi VCO dan *betaine* sehingga menghasikan sabun yang baik, tidak mengiritasi kulit, dan memiliki aktivitas antibakteri terhadap *S. aureus*.

Optimasi menggunakan desain faktorial software *Design Expert* versi 10 dilakukan terhadap parameter sifat fisik yang meliputi kekerasan sabun, ketinggian busa, dan pH sabun. Uji aktivitas antibakteri metode difusi terhadap bakteri *S. aureus* digunakan konsentrasi 0,5% ekstrak buah pare. Formula optimum diuji iritasi dengan metode skor *draize* menggunakan 5 ekor kelinci jantan dengan waktu pengamatan selama 24, 48, dan 72 jam.

Hasil optimasi dihasilkan VCO (7,5 gram) dan *betaine* (6,9 gram) dengan kriteria kekerasan (2,66 kg), ketinggian busa (8,01 cm), dan pH (9,13). Analisis T-test formula optimum hasil observasi dan prediksi tidak berbeda signifikan dengan nilai *p-value* >0,05. Formula optimum memiliki aktivitas antibakteri dengan diameter zona hambat sebesar 11,56 ±2,01 mm, dan memiliki indeks iritasi sebesar 0,0-0,4 (tidak membahayakan dan aman terhadap kulit).

Kata Kunci : *Staphylococcus aureus*, VCO, *betaine, draize,* formulation, bitter melon

ABSTRACT

MARDIYANTI, D., 2019. FORMULA OPTIMIZATION OF ANTIBACTERIAL SOLID SOAP ETHANOL EXTRACT OF BITTERMELON FRUIT (*Momordica charantia* L.) WITH VARIATIONS VIRGIN COCONUT OIL (VCO) AND COCOAMIDOPROPYL BETAINE, TESIS, FACULTY OF PHARMACEUTYCAL, SETIA BUDI UNIVERSITY, SURAKARTA.

One plant that has the potential as antibacterial is bitter melon fruit. VCO is easily absorbed by the skin so that the skin becomes moist. *Betaine* is used in making soap to produce abundant foam. Optimization of VCO and *betaine* aims to get moist soap, produce a lot of foam, and not irritate the skin. The purpose of this study was to optimize the formula for solid soap of bitter melon extract with variations of VCO and *betaine* to produce good soap, not irritate the skin, and have antibacterial activity against *S. aureus.*

Optimization using the factorial *Design Expert* version 10 software design was carried out on physical properties parameters including soap hardness, foam height, and pH of the soap. Antibacterial activity test of the diffusion method on *S. aureus* bacteria used 0.5% concentration of bitter melon extract. The optimum formula was tested for irritation using *the draize* score method using 5 male rabbits with observations for 24, 48 and 72 hours.

The optimization results produced VCO (7.5 grams) and *betaine* (6.9 grams) with hardness criteria (2.66 kg), foam height (8.01 cm), and pH (9.13). The optimum T-test formula analysis results of observations and predictions were not significantly different from the *p-value*> 0.05. The optimum formula has antibacterial activity with inhibition zone diameter of 11.56 ± 2.01 mm, and has an irritation index of 0.0-0.4 (no harm and is safe for the skin).

Keywords: *Staphylococcus aureus*, VCO, *betaine, draize*, formulation, bitter melon