OPTIMASI FORMULA SABUN CAIR EKSTRAK DAUN KERSEN DENGAN KOMBINASI VCO *(VIRGIN COCONUT OIL)* DAN MINYAK ZAITUN *(OLIVE OIL)* MENGGUNAKAN METODE *SIMPLEX LATTICE DESIGN*

Nurmi Angkotasan[1], Endah Kurniawati[2]

INTISARI

Latar Belakang: Sabun cair adalah sediaan yang digunakan untuk membersihkan kulit. Penelitian ini menggunakan ekstrak daun kersen sebagai zat aktif dengan kombinasi minyak zaitun dan VCO. Adanya kombinasi minyak tersebut dapat menghasilkan sabun cair dengan karakteristik fisik yang baik dan memenuhi syarat SNI.

Tujuan penelitian: Penelitian ini bertujuan untuk memperoleh perbandingan VCO dan minyak zaitun yang menghasilkan formula yang optimum, mengevaluasi pengaruh VCO dan minyak zaitun terhadap sifat fisik dari sabun cair ekstrak daun kersen formula optimum menggunakan metode *Simplex Lattice Design*, dan untuk mengetahui apakah sabun cair ekstrak daun kersen memenuhi Standar Nasional Indonesia (SNI).

Metode Penelitian: Ekstraksi daun kersen dilakukan dengan metode maserasi menggunakan pelarut etanol 70%. Metode *Simplex Lattice Design* digunakan untuk optimasi formula sabun cair berdasarkan variasi *Virgin coconut oil* (VCO) dan minyak zaitun. Verifikasi formula optimum sabun cair ekstrak daun kersen dianalisis dengan uji *t-test one* sample untuk membandingkan hasil karakteristik fisik sabun cair prediksi *Software Design Expert* 7 dengan nilai hasil observasi diselipkan selama pengujian.

Hasil Penelitian: Tidak terdapat perbedaan yang signifikan ($p>0,05$) dari semua respon yaitu respon pH, stabilitas busa, bobot jenis, dan bahan aktif antara hasil prediksi *Software Design Expert* 7 dengan hasil observasi. Formula optimum memenuhi syarat sabun cair menurut SNI (pH, alkali bebas, bahan aktif dan cemaran mikroba) ,kecuali bobot jenis.

Kesimpulan: Formula sabun cair ekstrak daun kersen yang optimum didapatkan pada perbandingan VCO dan minyak zaitun yaitu 7,772:22,228. Kombinasi konsentrasi VCO dan minyak zaitun berpengaruh pada pH, stabilitas busa, alkali bebas dan bobot jenis. Sabun cair ekstrak daun kersen memenuhi syarat SNI yaitu pH 8,47; alkali bebas 0,112%; bahan aktif 25,85%; cemaran mikroba $7,8x10^4$ koloni/gram, namun bobot jenis sabun cair sebesar 0,964 tidak memenuhi syarat SNI.

Kata Kunci: Sabun Cair, Kersen,VCO, Minyak Zaitun, *Simplex Lattice design*

[1]Mahasiswa Farmasi Universitas Jenderal Achmad Yani Yogyakarta
[2]Dosen Farmasi Universitas Jenderal Achmad Yani Yogyakarta

OPTIMIZATION OF LIQUID SOAP FORMULA WITH KERSEN LEAVES EXTRACT WITH A COMBINATION OF VCO (VIRGIN COCONUT OIL) AND OLIVE OIL (OLIVE OIL) USING SIMPLEX LATTICE DESIGN

Nurmi Angkotasan[1], Endah Kurniawati[2]

ABSTRACT

Background: Liquid soap is a daily product used to clean the skin. This study used cherry leaf extract as the active substance with a combination of olive oil and VCO. The combination of these oils is expected to produce liquid soap with good physical characteristics and meet SNI.

Objectives: This study aims to obtain a comparison of VCO and olive oil that produces the optimum formula, evaluate the effect of VCO and olive oil on the physical properties of cherry leaf extract liquid soap using the Simplex Lattice Design, and to determine whether cherry leaf extract liquid soap meet the Indonesian National Standard (SNI).

Methods: Extraction of cherry leaves was carried out by maceration method using 70% ethanol as solvent. The Simplex Lattice Design used to optimize the liquid soap formula based on variations of Virgin coconut oil (VCO) and olive oil. Verification of the optimum formula for liquid soap of cherry leaf extract was analyzed by using a one sample t-test to compare the results of the physical characteristics of liquid soap predicted Software Design Expert 7 with the observed values during the test.

Results: There was no significant difference ($p>0.05$) of all responses, namely pH response, foam stability, density, and active ingredients between the predicted results of Software Design Expert 7 and the results of observations. The optimum formula for pH, free alkali, active ingredients and microbial contamination met the requirements for liquid soap according to SNI except for specific gravity.

Conclusion: Formula for liquid soap with cherry leaf extract was found to be optimum at the ratio of VCO and olive oil, which was 7,772: 22,228. The combination of VCO concentration and olive oil can affect pH, foam stability, free alkali and density. Cherry leaf extract liquid soap meets SNI requirements, namely pH 8,47; 0,112% free alkali; active ingredient 25,85%; microbial contamination 7.8×10^4 colonies/gram except liquid soap specific gravity of 0,964 does not meet the requirements of SNI.

Keywords: Liquid Soap, Cherry Leaf, VCO, Olive Oil, Simplex lattice design

[1]Pharmacy of Student Jenderal Achmad Yani University, Yogyakarta
[2]Pharmacist of Lecturer enderal Achmad Yani University, Yogyakarta