ABSRTAK

Rimpang Temu Putih (*Curcuma zedoaria*) memiliki kandungan senyawa polifenol yang memiliki aktivitas antioksidan dengan nilai IC_{50} sebesar 47,073 µg/ml. Aktivitas antioksidan berpengaruh terhadap nilai *Sun Protection Factor* (SPF), sehingga rimpang temu putih memiliki potensi untuk menjadi sediaan krim tabir surya. Tujuan penelitian ini, untuk mengetahui pengaruh kombinasi emulgator asam stearat dan trietanolamin terhadap sifat fisik krim ekstrak etanol rimpang temu putih serta mendapatkan formula yang optimum. Sediaan krim dibuat 8 formula dengan konsentrasi asam stearat minimum 15% dan maksimum 17%. Trietanolamin dengan konsentrasi minimum 2% dan maksimum 4% sesuai dengan optimasi metode *Simplex Lattice Design*. Optimasi formula menggunakan metode *Simplex Lattice Design* (SLD) dengan melihat parameter dari sifat fisik sediaan krim yaitu pH, daya sebar, daya lekat, dan viskositas. Hasil formula sediaan krim optimum yang didapatkan yaitu konsentrasi asam stearat 15% dan trietanolamin 4% dengan respon pH 6,63, daya sebar 6,285 cm, daya lekat 6 detik, dan viskositas 15120 cps. Sediaan krim ekstrak etanol rimpang temu putih yang optimum diuji aktivitas *Sun Protection Factor* (SPF) menggunakan alat spektrofotometer Uv-Vis dengan nilai SPF yang didapatkan sebesar 16,0171 yang menunjukkan memiliki proteksi ultra.

Kata Kunci : *Optimasi, Asam Stearat, Trietanolamin, Temu Putih, Sun Protection Factor (SPF).*

ABSTRACT

White ginger rhizome (Curcuma zedoaria) contains polyphenolic compounds which have antioxidant activity with an IC50 value of 47.073 μg/ml. Antioxidant activity influences the Sun Protection Factor (SPF) value, so that white ginger rhizome has the potential to be used as a sunscreen cream preparation. The aim of this research was to determine the effect of the combination of stearic acid and triethanolamine emulsifiers on the physical properties of white ginger rhizome ethanol extract cream and to obtain an optimum formula. The cream was prepared in 8 formulas with a minimum stearic acid concentration of 15% and a maximum of 17%. Triethanolamine with a minimum concentration of 2% and a maximum of 4% according to the optimization of the Simplex Lattice Design method. Formula optimization uses the Simplex Lattice Design (SLD) method by looking at the parameters of the physical properties of the cream preparation, namely pH, spreadability, stickiness and viscosity. The optimum cream preparation formula obtained was a concentration of 15% stearic acid and 4% triethanolamine with a pH response of 6.63, spreadability of 6.285 cm, adhesion of 6 seconds, and viscosity of 15120 cps. The optimum ethanol extract cream preparation of white ginger rhizomes was tested for Sun Protection Factor (SPF) activity using a Uv-Vis spectrophotometer with an SPF value obtained of 16.0171 which indicates it has ultra protection.

Keywords: Optimization, Stearic Acid, Triethanolamine, White Gum, Sun Protection Factor (SPF)