

Intisari

Penelitian tentang optimasi formula gel *sunscreen* ekstrak etanol rimpang kunir putih (*Curcuma mangga* Val.) dengan sorbitol dan propilen glikol sebagai *humectant* telah dilakukan. Tujuan dari penelitian ini adalah untuk memperoleh profil campuran *humectant* yang optimum.

Penelitian ini termasuk dalam rancangan eksperimental murni. Tiap formula diuji untuk mengetahui respon daya sebar, viskositas dan pergeseran viskositas. Uji efektivitas ekstrak rimpang kunir putih terhadap radiasi sinar ultraviolet (UV) dilakukan dengan uji SPF (*Sun Protection Factor*) secara *in vitro* menurut metode Petro (1981). Analisis hasil menggunakan perhitungan *simplex lattice design*, serta menggunakan analisis uji-F dengan taraf kepercayaan 95%. Optimasi formula menghasilkan gel dengan daya sebar 3cm-5cm, viskositas antara 350 – 440 dPa.s, dan pergeseran viskositas kurang dari 10%. Kemudian dibuat *contour plot superimposed* untuk mengetahui profil campuran *humectant* optimum serta prediksi formula optimum gel *sunscreen* pada komposisi *humectant* yang diteliti.

Hasil analisis data menunjukkan bahwa kadar kurkuminoid ekstrak etanol rimpang kunir putih yang diperoleh berdasarkan nilai SPF *in vitro* 15,18 adalah 0,688 mg%. Berdasarkan *contour plot superimposed* yang meliputi daya sebar dan stabilitas (% pergeseran viskositas), komposisi propilen glikol:sorbitol dalam setiap perbandingan menunjukkan respon yang optimum.

Kata kunci: ekstrak rimpang kunir putih, *sunscreen*, sorbitol, propilen glikol, *simplex lattice design*

Abstract

The research of optimization of *sunscreen* gel formula from *Curcuma mangga* Val. rhizome extract, which combined with sorbitol and propylene glycol as humectants, had been carried out. This study aimed to obtain the optimum mixture profile of humectant.

This research was a pure experimental design. Each of formula was evaluated to find out the response of spreadability, viscosity, and viscosity shift. The efectivity evaluation of the *curcuma mangga* Val. extract the ultraviolet radiance (UV) was done with an *in vitro* SPF (Sun Protection Factor) test based on Petro (1981) method. The formula were optimized using simplex lattice design and analysed stastically using F test analysis with 95% confident interval. The citeria of the optimum formula were spreadability 3cm-5cm, viscosity between 350-440 dPa.s, and viscosity shift less than 10%.The contour plot superimposed was then used to find out the mixture profile of optimum humectant composition that was tested.

The result showed that curcuminoid concentration of curcuma rhizome ethanolic extract which provided SPF of 15,18 was 0,688 mg%. Based on the superimposed contour plot covering spreadabilty and stability of gel, the composition of sorbitol:propilen glikol on every level showed optimum responses.

Key words : (*Curcuma mangga* Val.) rhizome extract, sunscreen, sorbitol, propylene glycol, simplex lattice design.