

Intisari

Penelitian tentang optimasi formula gel *sunscreen* ekstrak rimpang kunir putih (*Curcuma mangga* Val.) dengan variasi komposisi *gelling agent* (Carbopol[®]) dan *humectant* (sorbitol) bertujuan untuk memperoleh komposisi optimum dari *gelling agent* dan *humectant* agar didapat formula gel yang memiliki sifat fisik yang baik.

Penelitian ini termasuk dalam rancangan eksperimental murni dengan variabel eksperimental ganda dengan dua faktor, yaitu Carbopol[®]-sorbitol dan dua level yaitu level tinggi-level rendah. Optimasi komposisi formula gel *sunscreen* menggunakan metode desain faktorial dengan membuat beberapa variasi kombinasi *gelling agent* dan *humectant*. Optimasi dilakukan terhadap parameter sifat fisik gel meliputi daya sebar, viskositas, dan stabilitas sediaan selama penyimpanan. Parameter sifat fisik sediaan gel dianalisis dengan analisis statistik ANOVA menggunakan taraf kepercayaan 95% dengan metode optimasi desain faktorial dan *Yate's Treatment*.

Hasil analisis data menunjukkan bahwa ekstrak rimpang kunir putih dapat memberikan serapan pada panjang gelombang UVA–UVB, Carbopol[®] merupakan faktor yang dominan dalam menentukan daya sebar, viskositas, dan pergeseran viskositas gel *sunscreen*. Diperoleh area optimum formula gel *sunscreen* berdasarkan *contour plot superimposed* yang meliputi daya sebar, viskositas, dan stabilitas pada level yang diteliti. Optimasi formula menghasilkan gel dengan daya sebar kurang dari 5 cm, viskositas antara 250 – 260 dPa.s, dan pergeseran viskositas kurang dari 3%.

Kata kunci : ekstrak rimpang kunir putih, Carbopol[®], sorbitol, desain faktorial

Abstract

The research about optimizing of *sunscreen* gel formula from *Curcuma mangga* Val. rhizome extract with variation of gelling agent (Carbopol[®]) and humectant (sorbitol) composition is purposed to get an optimum composition of gelling agent and humectant, so it can achieve gel formula which has good physical characteristic.

This research including pure experimental design with double experimental variable, with two factors that is Carbopol[®]-sorbitol and two levels that is high level-low level. Optimizing of sunscreen gel formula composition use factorial design method with make some variations of gelling agent and humectant. Optimizing is done to characteristic parameters including spreadability, viscosity, and alteration of viscosity of preparation during storage. The physical characteristic parameters and stability of gel preparation is analyzed with ANOVA statistic using α 95% which is using factorial design optimizing method and Yate's Treatment.

Data analyze result shows that *C. mangga* rhizome extract can give absorption at UVA-UVB wavelength, Carbopol[®] is dominant and significant influential factor in determining spreadability, viscosity, and alteration of viscosity (stability) of sunscreen gel. Optimum area of sunscreen gel formula based on contour plot superimposed including spreadability, viscosity, and stability at the researched level has been found. Formula optimizing produce gel with spreadability less than 5 cm, viscosity between 250 – 260 dPa.s, and viscosity movement is less than 3%.

Key word : *C. mangga* rhizome extract, Carbopol[®], sorbitol, factorial design