INTISARI

Senyawa alami telah populer untuk diformulasikan dalam tabir surya. Ekstrak buah labu kuning mengandung senyawa fitokimia yang dapat melindungi kulit dari paparan sinar UV sehingga berpotensi untuk diformulasikan menjadi tabir surya. Tujuan penelitian ini adalah menentukan formula emulsi yang optimal, mengevaluasi sifat fisik, dan menguji aktivitas tabir surya emulgel ekstrak buah labu kuning. Komponen yang dioptimasi adalah Tween®80 dan Span®80 dengan metode *Simplex Lattice Design* menggunakan *software Design Expert* versi 13. Emulsi ekstrak buah labu kuning selanjutnya didispersikan ke dalam fase gel dengan Carbopol 940 sebagai *gelling agent*. Emulgel dievaluasi sifat fisiknya yaitu organoleptis, pH, viskositas, daya sebar, daya lekat, serta stabilitas sineresis, sentrifugasi, dan *cycling test*. Pengujian aktivitas tabir surya dilakukan secara *in vitro* dengan spektrofotometer UV-Vis kemudian data dianalisis dengan *software* IBM® SPSS® *Statistics*. Hasil penelitian menunjukkan bahwa formula optimal memiliki konsentrasi Tween®80 sebesar 2,36% dan Span®80 sebesar 2,64%. Emulgel ekstrak buah labu kuning berwarna coklat, berbau manis yang khas dengan pH, viskositas, daya sebar, dan daya lekat yang memenuhi syarat mutu. Emulgel dengan konsentrasi ekstrak buah labu kuning 10% memiliki nilai SPF 6,247 ± 0,031. Emulgel memiliki sifat fisik yang baik pada uji stabilitas selama 4 minggu, namun mengalami perubahan pada pH dan viskositas.

Kata kunci: ekstrak buah labu kuning, SLD, emulgel, tabir surya

ABSTRACT

Natural compounds have been popular to be formulated in sunscreens. Pumpkin fruit extract contains phytochemical compounds that can protect the skin from UV exposure and have the potential to be formulated into sunscreen. The objective of this research was to determine the optimal emulsion formula, evaluate the physical properties, and tests the sun-protective activity of pumpkin fruit extract emulgel. The optimized components were Tween®80 and Span®80 using the Simplex Lattice Design method with Design Expert version 13. The pumpkin extract emulsion was then dispersed into a gel phase with Carbopol 940 as a gelling agent. Emulgels were evaluated for its physical properties, including organoleptic, pH, viscosity, spreadability, adhesiveness, as well as syneresis, centrifugation, and cycling stability tests. In vitro sunscreen activity testing was performed using a UV-Vis spectrophotometer and then data were analyzed with IBM® SPSS® Statistics. The research shows that the optimal formula had a concentration of 2.36% for Tween®80 and 2.64% for Span®80. Pumpkin fruit extract emulgel was brown in color, had a distinctive sweet aroma, and met the quality criteria for pH, viscosity, spreadability and adhesion. Emulgel with a 10% concentration of pumpkin fruit extract had an SPF value of 6.247 ± 0.031. Emulgel exhibited good physical properties in the stability testing for 4 weeks, but underwent changes in pH level and viscosity.

Keywords: pumpkin fruit extract, SLD, emulgel, sunscreen