



INTISARI

Kalkon merupakan golongan flavonoid yang memiliki aktivitas sebagai tabir surya. Penelitian ini bertujuan untuk mengetahui formula optimum *lotion* kalkon, sifat dan stabilitas fisik formula optimum *lotion*, dan aktivitas tabir surya formula optimum *lotion* kalkon secara spektrofotometri.

Formula optimum diperoleh dengan metode *Simplex Lattice Design* menggunakan *software Design Expert*[®] versi 10. Untuk menentukan formula optimum digunakan tiga respon, yaitu viskositas, daya sebar, dan daya lekat. Uji sifat fisik *lotion* yang dilakukan meliputi uji daya sebar, uji daya lekat, dan viskositas. Uji stabilitas fisik *lotion* dilakukan dengan uji *freeze thaw cycling*. Aktivitas tabir surya *lotion* ditentukan secara spektrofotometri dengan menentukan *Sun Protection Factor* (SPF). Data dianalisis dengan *t-test* dan *One Way ANOVA* dengan taraf kepercayaan 95%.

Hasil penelitian menunjukkan bahwa formula optimum *lotion* terdapat pada kombinasi 2,18% setil alkohol, 0,32% karbopol, dan 5,99% gliserin. Formula optimum *lotion* kalkon memiliki viskositas $73,48 \pm 6,18$ dPas, daya lekat $7,14 \pm 1,26$ sekon, dan daya sebar $24,99 \pm 1,11$ cm². Hasil analisis statistik menunjukkan bahwa *lotion* memiliki stabilitas yang cukup baik. *Lotion* pada konsentrasi 10% dengan konsentrasi kalkon dalam *lotion* 0,05% memiliki aktivitas sebagai tabir surya secara *in vitro* dengan nilai SPF sebesar 36,93.

Kata kunci: Kalkon, optimasi, tabir surya, *lotion*



ABSTRACT

Chalcone is a flavonoid that have activity as sunscreen. The objective of this research is to find out the optimum formula of chalcone lotion, physical properties, stability of optimum lotion formula, and sunscreen activity by spectrophotometry.

The optimum formula was obtained by Simplex Lattice Design method using Design Expert® version 10. To determine the optimum formula used three responses, viscosity, spreading, and stickiness. Physical properties of lotions that are carried out include spreading test, stickiness test, and viscosity. Physical stability test of lotion is done by freeze thaw cycling test. Sunscreen lotion activity is determined spectrophotometrically by determining Sun Protection Factor (SPF). Data were analyzed by t-test and One Way ANOVA with 95% confidence level.

The results showed that the optimum lotion formula was found in combination of 2.18% cetyl alcohol, 0.32% carbopol, and 5.99% glycerin. The optimum formula of chalcone lotion has a viscosity of 73.48 ± 6.18 dPas, adhesion of 7.14 ± 1.26 second, and power spread of 24.99 ± 1.11 cm². The results of statistical analysis showed that the lotion has a pretty good stability. Lotion at 10% concentration with chalcone concentration in lotion 0,05% has activity as sunscreen in vitro with SPF value equal to 36,93.

Key words: *Chalcone, optimization, sunscreen, lotion*