

## INTISARI

Minyak biji bunga matahari dan minyak biji anggur mengandung vitamin E yang memiliki aktivitas antioksidan yang diketahui memiliki efek perlindungan terhadap kerusakan kulit akibat sinar UV. Dalam penelitian ini, dilakukan optimasi formula *lotion* tabir surya dengan bahan aktif berupa minyak biji anggur dan minyak biji bunga matahari. Penelitian ini bertujuan untuk mengetahui konsentrasi optimum dari bahan tambahan dalam formula berupa Na-CMC dan HPMC untuk menghasilkan respon berupa stabilitas dan sifat fisik yang paling baik serta mengevaluasi aktivitas minyak biji anggur dan minyak biji bunga matahari sebagai tabir surya secara *in vitro*.

Optimasi formula *lotion* dilakukan dengan metode SLD (*Simplex Lattice Design*) pada perangkat lunak *Design Expert* versi 13 untuk kemudian dilakukan verifikasi terhadap formula *lotion* yang paling optimum berdasarkan respon yang dihasilkan menggunakan uji *One Sample T-test* serta dilakukan evaluasi stabilitas fisiknya yang dianalisis menggunakan uji *One-way ANOVA* pada perangkat lunak *Minitab* versi 22.

Hasil penelitian menunjukkan bahwa formula optimum *lotion* dengan kadar Na-CMC 1% dan HPMC 1% menghasilkan viskositas sebesar 36,47; pH 6,01; daya lekat 1,83 detik; dan diameter sebar 6,61 cm. Formula optimum *lotion* dengan konsentrasi zat aktif masing-masing 5% dan 10% berturut-turut menghasilkan nilai SPF 11,72 dan 27,07. Peningkatan kadar zat aktif tersebut mempengaruhi respon viskositas, pH, dan diameter sebar *lotion* secara signifikan namun masih sesuai dengan persyaratan. Kedua formula optimum *lotion* stabil dalam penyimpanan meskipun terdapat penurunan nilai pH yang masih dalam batas aman.

**Kata kunci : *lotion*, biji anggur, biji bunga matahari**

## ABSTRACT

Sunflower seed oil and grape seed oil contain vitamin E which has antioxidant activity that is known to have a protective effect against skin damage caused by UV rays. In this study, optimization of sunscreen *lotion* formula with active ingredients such as grape seed oil and sunflower seed oil was conducted. This study aims to determine the optimum concentration of additional ingredients in the formula in the form of Na-CMC and HPMC to produce a response in the form of stability and physical properties that are best and evaluate the activity of grape seed oil and sunflower seed oil as sunscreen in vitro.

Optimization of the *lotion* formula was carried out using the SLD (Simplex Lattice Design) method on Design Expert software version 13 and then verification of the most optimum *lotion* formula based on the response produced using the One Sample T-test and evaluation of its physical stability analyzed using the One-way ANOVA test on Minitab software version 22.

The results showed that the optimum *lotion* formula with 1% Na-CMC and 1% HPMC produced a viscosity of 36.47; pH 6.01; adhesivity of 1.83 seconds; and spread diameter of 6.61 cm. The optimum *lotion* formula with active substance concentration of 5% and 10% respectively produced SPF values of 11.72 and 27.07. The increase in active substance levels affected the viscosity, pH, and spread diameter responses of the *lotion* significantly but still in accordance with the requirements. Both optimum *lotion* formulas are stable in storage although there is a decrease in pH value which is still within safe limits.

**Keywords:** lotion, grape seed, sunflower seed