

INTISARI

Minyak biji anggur (*Vitis vinifera L.*) dan ekstrak lidah buaya (*Aloe vera L.*) diketahui memiliki aktivitas antioksidan yang berperan untuk mencegah penuaan dini sehingga berpotensi untuk dikembangkan menjadi sediaan kosmetik. Penelitian ini bertujuan untuk mengevaluasi pengaruh variasi kadar natrium alginat dan HPMC terhadap sifat fisik dan stabilitas emulgel minyak biji anggur dan lidah buaya, menentukan formula optimumnya, serta menentukan aktivitas antioksidan emulgel berdasarkan nilai IC_{50} .

Metode penelitian adalah eksperimental dengan mengoptimasi kadar natrium alginat dan HPMC menggunakan metode *Simplex Lattice Design* pada *software Design Expert* versi 13, lalu hasil formula optimum dilakukan uji stabilitas dipercepat selama tiga siklus, meliputi uji tipe emulsi, organoleptis, homogenitas, pH, daya lekat, daya sebar, dan viskositas. Uji aktivitas antioksidan digunakan metode DPPH untuk memperoleh nilai IC_{50} . Verifikasi formula optimum dianalisis menggunakan *One sample t-test*, sedangkan data uji stabilitas dianalisis menggunakan *One-Way ANOVA*.

Formula optimum diperoleh kadar HPMC sebesar 3,2% dan natrium alginat sebesar 1,8%. Aktivitas antioksidan emulgel menunjukkan kategori kuat dengan IC_{50} sebesar $96,67 \pm 2,65 \mu\text{g/mL}$. Penelitian ini dapat disimpulkan bahwa emulgel memiliki sifat fisik yang baik, tidak terjadi pemisahan fase selama 3 siklus *cycling test*, dan stabil memiliki tipe emulsi M/A. Nilai pH menunjukkan perubahan signifikan, tetapi masih berada dalam rentang aman yang disyaratkan.

Kata kunci: Emulgel, HPMC, alginat, anggur, lidah buaya

ABSTRACT

*Grape seed oil (*Vitis vinifera L.*) and aloe vera extract (*Aloe vera L.*) are known to have antioxidant activity which plays a role in preventing premature aging so they have potential to be developed in cosmetic preparations. This study aims to evaluate the effect of variations concentration of sodium alginate and HPMC on the physical properties and stability of grape seed oil and aloe vera emulgel, determine the optimum formula, and determine the antioxidant activity of the emulgel based on the IC_{50} value.*

The research method was experimental by optimizing the concentration of sodium alginate and HPMC using the Simplex Lattice Design method in Design Expert version 13 software, then the optimum formula results were carried out to accelerated stability tests for three cycles, including tests for emulsion type, organoleptic, homogeneity, pH, adhesiveness, spreadability, and viscosity. The DPPH method was used to test the antioxidant activity. Verification of the optimum formula was analyzed using One sample t-test, while stability test data was analyzed using One-Way ANOVA.

The optimum formula obtained HPMC concentration of 3.2% and sodium alginate of 1.8%. The antioxidant activity of emulgel shows a strong category with an IC_{50} of $96.67 \pm 2.65 \mu\text{g/mL}$. This research can be concluded that the emulgel has good physical properties, no phase separation occurs during 3 cycling test cycles, and stable as an O/W emulsion type. The pH value shows significant changes, but it still within the required safe range.

Keywords: *Emulgel, HPMC, alginate, grape, aloe*