

## ABSTRAK

Ekstrak daun kembang bulan (*Tithonia diversifolia*) mengandung senyawa tagitinin C yang mempunyai aktivitas menghambat proliferasi fibroblast keloid. Penelitian ini bertujuan untuk mendapatkan formula optimum *lotion o/w* dengan variasi setil alkohol, parafin cair dan gliserin yang mempunyai sifat fisik dan stabilitas fisik yang memenuhi persyaratan.

Optimasi formula dilakukan dengan metode *simplex lattice design (SLD)*. Respon yang digunakan untuk menentukan formula optimum yaitu viskositas, daya sebar, daya lekat dan pH. Stabilitas fisik dilakukan dengan mengamati sifat fisik *lotion* selama empat minggu, *freeze thaw cycling* dan sentrifugasi. Hasil pengujian dianalisis dengan *t-test* dan *oneway ANOVA* dengan taraf kepercayaan 95%.

Hasil penelitian menunjukkan bahwa formula optimum *lotion* terdiri dari kombinasi 2,21% setil alkohol, 6,42% parafin cair dan 6,37% gliserin. Formula optimum basis memiliki viskositas  $52,15 \pm 1,752$  dPa.s, daya sebar  $31,94 \pm 0,956$  cm<sup>2</sup>, daya lekat  $6,46 \pm 0,316$ , dan pH  $6,461 \pm 0,016$  sedangkan *lotion* ekstrak daun kembang bulan memiliki viskositas  $51,70 \pm 1,236$  dPa.s, daya sebar  $31,81 \pm 0,478$  cm<sup>2</sup>, daya lekat  $6,56 \pm 0,247$  detik, dan pH  $6,339 \pm 0,041$ . Hasil analisis statistik menunjukkan bahwa *lotion* stabil dalam penyimpanan selama empat minggu.

**Kata kunci:** Optimasi, *Lotion*, Kembang Bulan

## ABSTRACT

Kembang bulan leaf extract (*Tithonia diversifolia*) contains tagitinin C compound which has activities to inhibit proliferation of keloid fibroblast. This study aims to obtain the optimum formula lotion with variations in cetyl alcohol, liquid paraffin and glycerin which have physical properties and physical stability that meet the requirements.

The optimization formula is done by the Simplex Lattice Design (SLD) method. The response used to determine the optimal formula is viscosity, spreadability, adhesion and pH. Physical stability was done to observed physical properties of lotion for four weeks, freeze thaw cycling and centrifugation. The evaluation results were analyzed by t-test and ANOVA with a confidence level of 95%.

The results showed that the optimum formula lotion consisted of a combination of 2,21% cetyl alcohol, 6,42% liquid paraffin and 6,37% glycerin. The optimum formula base has a viscosity of  $52,15 \pm 1,752$  dPa.s, spreadability of  $31,94 \pm 0,956$  cm<sup>2</sup>, adhesion of  $6,46 \pm 0,316$ , and pH of  $6,461 \pm 0,016$  while lotion of kembang bulan leaf extract has a viscosity of  $51,70 \pm 1,236$  dPa s, spreadability is  $31,81 \pm 0,478$  cm<sup>2</sup>, adhesion is  $6,56 \pm 0,247$  seconds, and pH is  $6,339 \pm 0,041$ . The results of statistical analysis showed the lotion was stable in storage for four weeks.

Keywords: Optimization, *Lotion*, Kembang Bulan