

INTISARI

Ekstrak temu mangga (*Curcuma mangga* Val.) memiliki aktivitas sebagai tabir surya secara spektrofotometri. Penelitian ini bertujuan untuk mengetahui formula optimum *lotion o/w*, sifat dan stabilitas fisik formula optimum *lotion o/w*, serta aktivitas tabir surya formula optimum *lotion o/w* ekstrak temu mangga (*Curcuma mangga* Val.) secara spektrofotometri.

Formula optimum diperoleh dengan metode *Simplex Lattice Design* (SLD). Respon yang digunakan untuk menentukan formula optimum adalah daya lekat dan viskositas. Stabilitas fisik *lotion o/w* pada suhu ruang meliputi uji daya sebar, daya lekat, dan viskositas, serta uji *freeze thaw cycling*. Aktivitas tabir surya *lotion o/w* ditentukan secara spektrofotometri untuk menentukan *Sun Protecting Factor* (SPF), % transmisi eritema, dan % transmisi pigmentasi. Data dianalisis dengan *One Way ANOVA* dan uji t.

Hasil penelitian menunjukkan bahwa formula optimum *lotion o/w* pada kombinasi 5% trietanolamin (TEA)-stearat dan 5% setil alkohol. *Lotion o/w* ekstrak temu mangga memiliki daya sebar $63,21 \pm 2,69 \text{ cm}^2$, daya lekat $2,32 \pm 0,15$ detik, dan viskositas sebesar $133,5 \pm 8,05$ dPas. Hasil analisis statistika menunjukkan bahwa *lotion o/w* memiliki stabilitas yang baik. *Lotion o/w* mempunyai aktivitas sebagai tabir surya pada konsentrasi ekstrak dalam *lotion* 0,015% dengan nilai SPF sebesar $12,817 \pm 0,161$ dan tidak efektif dalam perlindungan terhadap eritema dan pigmentasi.

Kata kunci: *Curcuma mangga*, *lotion*, SLD, tabir surya

ABSTRACT

The extract of *Curcuma mangga* Val.is proven to have sunscreen activity, which was evaluated by spectrophotometry. This study aimed to identify and determine the optimum formulation of oil in water lotion of *Curcuma mangga* extract, properties and physical stability of the lotion. The activity of optimum formulation of sunscreen o/w lotion of *Curcuma mangga* extract (*Curcuma mangga* Val.) was measured by spectrophotometry.

The optimum formulation was obtained by Simplex Lattice Design (SLD) method, then the physical characteristics was employed to create the optimum formulation. Physical stability of o/w lotion was measured at room and accelerated temperature. The sunscreen activity of o/w lotion was measured to determine the Sun Protecting Factor (SPF) value, percent of erythema transmission and percent of pigmentation transmission.

The result showed that the optimum formulation of o/w lotion was obtained from combination of 5% triethanolamine (TEA)-stearic and 5% cetyl alcohol. Oil in water lotion of *Curcuma mangga* extract has a good stability, spreadability was $3.21 \pm 2.69 \text{ cm}^2$, while adhesion power and viscosity was 2.32 ± 0.15 seconds and 133.5 ± 8.05 dPas respectively. The SPF value was 12.817 ± 0.161 , indicating that *Curcuma mangga* extract in optimum formulation of o/w lotion can be considered as a good candidate for sunscreen. However, it was ineffective in the protection of erythema and pigmentation condition.

Keywords: Curcuma mangga, lotion, SLD, sunscreen