

INTISARI

Fraksi buah mengkudu (*Morinda citrifolia* L.) mengandung polisakarida yang berkhasiat sebagai immunostimulan, untuk meningkatkan estetika dan *acceptability* perlu diformulasi menjadi sediaan sirup. Sirup mengandung zat aktif dan bahan tambahan. Penelitian ini dilakukan untuk mengoptimasi bahan tambahan dan mengevaluasi stabilitas sirup.

Sirup dengan kandungan 50% fraksi buah mengkudu diformulasikan dengan mengoptimasi kadar *xanthan gum* dan sukrosa menggunakan metode *Simple Lattice Design* (SLD) dengan aplikasi *design expert version 11*. Kontrol kualitas sirup meliputi sifat fisik (tanggap rasa, viskositas, pH, daya tuang) dan mikrobiologi (Angka kapang/khamir dan Angka lempeng total). Formula optimum yang diperoleh dari hasil eksperimen dianalisis dengan *one sample t-test* terhadap nilai prediksi, untuk mengetahui perbedaan bermakna antara kedua nilai. Uji stabilitas sirup menggunakan metode *freeze thaw*. Evaluasi stabilitas sirup didasarkan pada kontrol kualitas sirup selama 3 siklus *freeze thaw*. Sifat fisik ketiga siklus dianalisis dengan menggunakan *one way ANOVA*, sedangkan parameter mikrobiologi menggunakan *Kruskal-Wallis*.

Formula optimum sirup yang diperoleh mempunyai komposisi *xanthan gum* 0,14% b/v dan sukrosa 59,41% b/v dengan *desirability* 0,959. Respon sifat fisik hasil percobaan memiliki perbedaan bermakna dengan nilai prediksi pada parameter tanggap rasa dan pH, sedangkan respon mikrobiologi tidak dipengaruhi oleh *xanthan gum* dan sukrosa. Hasil uji stabilitas *freeze thaw* menunjukkan sirup stabil.

Kata kunci : sirup, optimasi, *freeze thaw*, *xanthan gum*, sukrosa

ABSTRACT

*A Fraction of Noni fruit (*Morinda citrifolia* L.) has been acknowledged for immunostimulatory activity, to enhance acceptability and aesthetics, A fraction should be formulated into a prepared syrup. The Syrup contains an active substance and excipients. This research aimed to optimize excipients which are used to formulate and evaluate stability of the syrup.*

The Syrup contained 50% Noni fruit formulated to optimize sucrose and xanthan gum by using a Simplex Lattice Design method with software Design Expert version 11. Quality control of syrup involved physical properties (taste testing, viscosity, pH, flow rate) and microbiology (total content of mold/yeast and bacteria). The optimal formula from the experiment was analyzed by one sample t-test compared to prediction value, to find out the difference in the value of both. The stability of syrup was determined by using a freeze thaw method. The evaluation of syrup stability was based on quality control during three cycles of freeze thaw. Physical properties of the three cycles were analyzed with one way ANOVA, while microbiology parameter used Kruskal-Wallis.

The optimal formula is contained xanthan 0.14% w/v xanthan gum and 59.41% w/v sucrose with desirability 0.959. Physical properties of the experiment had a significantly different value than taste testing and pH compared to prediction value, meanwhile xanthan gum and sucrose didn't influence microbial content. The result of the syrup stability testing showed no any change after three freeze thaw cycles, which showed that this formula is appropriate.

Keyword : syrup, optimize, freeze thaw, xanthan gum, sucrose