

INTISARI

Herba sambiloto (*Andrographis paniculata* (Burm. f.) Nees) dan daun mimba (*Azadirachta indica* A. Juss) digunakan oleh masyarakat untuk membantu mengurangi kadar gula darah tinggi. Sediaan dalam bentuk sirup memberikan kemudahan dalam penggunaan kombinasi tanaman tersebut. Penelitian ini bertujuan untuk mengoptimasi formula sirup kombinasi kedua ekstrak dan mengkaji pengaruh variasi komposisi propilen glikol dan sorbitol 70% terhadap sifat fisika-kimia dan stabilitas fisika-kimia sediaan sirup.

Simplisia diekstraksi dengan etanol 70% hingga diperoleh ekstrak kental dan dikarakterisasi dengan uji susut pengeringan, penyanderaan organoleptis, daya lekat, dan identifikasi senyawa aktif. Optimasi formula sirup diawali dengan pembuatan variasi formula sirup kombinasi ekstrak herba sambiloto dan daun mimba dan diuji sifat fisika-kimianya meliputi viskositas, waktu tuang, tanggap rasa, derajat keasaman dan durasi stabilitas sediaan selama tujuh hari. Data hasil uji digunakan untuk mencari formula optimum dengan metode *Simplex Lattice Design* (SLD) dan hasil percobaan diverifikasi dengan hasil prediksi *software* menggunakan analisis statistik *one sample t-test* dengan taraf kepercayaan 95%. Formula optimum diuji stabilitas fisika-kimianya selama tujuh hari dan dilihat perbedaan responnya menggunakan analisis statistik *paired sample t-test* dengan taraf kepercayaan 95%. Analisis kuantitatif dan uji statistik dengan *one-way ANOVA* dilakukan untuk mengetahui perbedaan kadar relatif senyawa identitas dalam tiap formula.

Hasil penelitian menunjukkan formula optimum diperoleh dengan perbandingan 12 % propilen glikol dan 33% sorbitol 70%. Penambahan propilen glikol dapat meningkatkan nilai waktu tuang, pH dan durasi stabilitas. Penambahan sorbitol 70% dapat meningkatkan nilai tanggap rasa. Verifikasi hasil prediksi karakteristik sirup formula optimum menunjukkan persamaan respon waktu tuang dan tanggap rasa tidak berbeda signifikan. Formula optimum hasil SLD stabil selama penyimpanan tujuh hari. Perbedaan kadar relatif dalam tiap formula menunjukkan formulasi mempengaruhi kandungan senyawa aktif dalam sediaan.

Kata kunci : Sambiloto, Mimba, Propilen Glikol, Sorbitol 70%, *Simplex Lattice Design*

ABSTRACT

Andrographis paniculata (Burm.f.) Nees and *Azadirachta indica* A.Juss are commonly used in society to treat high blood sugar levels. Formulation of both extract syrups needs to be done to facilitate the consumers. This study aims to optimize both extract syrup formula and assess the effect of variations in the composition of propylene glycol and sorbitol 70% toward the physico-chemical properties and stability of syrups.

Simplex extracted by 70% ethanol to obtain a thick extract. The extract was characterized by drying shrinkage test, organoleptic test, adhesion test, and identification of active compounds. Optimization of the formula began with making syrup variation and tested the physico-chemical properties of the syrups include viscosity, pour time, tasted response, acidity and duration of sample stability. The test results were analyzed to determine the optimum formula by Simplex Lattice Design (SLD) method and compared with prediction value using one sample t-test. The physico-chemical stability of the optimum formula were tested for seven days and compared the difference using paired sample t-test. Quantitative analysis and statistical tests with one-way ANOVA was conducted to determine differences in the relative levels of the active compound in each formula.

The results showed that optimum formula by SLD has a composition of 12% propylene glycol and 33% sorbitol 70%. The addition of propylene glycol increases the value of pour time, acidity and duration of sample stability. The addition of sorbitol 70% increases the value of tasted response. Verification of prediction result showed the equation response of pour time and tasted response didn't different significantly. The result showed that optimum formula from SLD is stable during seven days storage. Differences in the relative levels in each formula showed that formulations affect the relative levels of the active compounds.

Keywords : *A.paniculata*, Neem, propylene glycol, sorbitol 70%, Simplex Lattice Design