

INTISARI

RIZKHY ARDIANSYAH RAMADHAN S., 2024. OPTIMASI FORMULA TABLET HISAP EKSTRAK DAUN MATOA (*POMETIA PINNATA* J.R.FORST & G. FORST) DENGAN VARIASI KONSENTRASI *POLIVINILPIROLIDON* (PVP) SEBAGAI BAHAN PENGIKAT DAN TALK-MAGNESIUM STEARAT SEBAGAI BAHAN PELICIN DENGAN METODE *SIMPLEX LATTICE DESIGN*, SKRIPSI, PROGRAM STUDI, S1 FARMASI, FARMASI, UNIVERSITAS SEIABUDI, SURAKARTA. Dibimbing oleh Dr. apt. Ika Purwidyaningrum, S.Farm., M.Sc.. dan apt. Siti Aisiyah, M.Sc

Keanekaragaman hayati Indonesia menyediakan sumber potensial bahan baku obat, termasuk matoa (*Pometia pinnata* J.R.Forst & G. Forst) yang bermanfaat dalam bidang farmasi dan kosmetika. Daun matoa mengandung flavonoid, alkaloid, tanin, dan saponin, yang berfungsi sebagai antibakteri, antijamur, antioksidan, antikanker, dan antihipertensi. Penelitian ini mengkaji pengaruh kombinasi Polivinil Pirolidon (PVP) dan Talk-Mg Stearat terhadap sifat fisik granul dan tablet hisap ekstrak daun matoa, serta menentukan konsentrasi formula optimum menggunakan metode Simplex Lattice Design (SLD).

Daun matoa diidentifikasi, lalu diuji susut pengeringan. Ekstrak daun diperoleh melalui maserasi dengan etanol 96% dan diuji kadar air serta komponen fitokimia. Tablet hisap dibuat dengan metode granulasi basah dan dievaluasi untuk waktu alir, sudut diam, indeks pengetapan, dan susut pengeringan. Tablet diuji keseragaman bobot, kekerasan, kerapuhan, dan waktu hancur. Data dianalisis untuk mengevaluasi kecocokan dengan persyaratan yang ditetapkan, membandingkan dengan literatur, dan meminimalkan kesalahan. Analisis statistik menggunakan Design Expert v13 dengan model Simplex Lattice Design, dan verifikasi dilakukan dengan uji one sample t-test pada tingkat kepercayaan 95%.

Hasil penelitian menunjukkan bahwa kombinasi PVP dan Talk-Mg stearat berpengaruh terhadap mutu fisik granul dan tablet hisap dengan meningkatkan kecepatan alir, mengurangi sudut diam dan kompresibilitas, meningkatkan kekerasan, menurunkan kerapuhan, dan memperlama waktu hancur. Konsentrasi optimum PVP 3,07% dan Talk-Mg stearat 2,92% memberikan hasil terbaik berdasarkan parameter kritis: waktu alir, sudut diam, kompresibilitas, kekerasan, kerapuhan, dan waktu hancur.

Katakunci: Daun matoa, Magnesium stearat, *Simplex lattice design*, Tablet hisap, Talk.

ABSTRACT

RIZKHY ARDIANSYAH RAMADHAN S., 2024. OPTIMIZATION OF MATOA LEAF EXTRACT (POMETIA PINNATA J.R.FORST & G. FORST) LOZENGE FORMULA WITH VARIATIONS IN POLYVINYLPIRROLIDONE (PVP) CONCENTRATION AS A BINDER AND TALC-MAGNESIUM STEARATE AS A LUBRICANT USING THE SIMPLEX LATTICE DESIGN METHOD, THESIS, BACHELOR OF PHARMACY PROGRAM, SEIABUDI UNIVERSITY, SURAKARTA. Supervised by Dr. apt. Ika Purwidyaningrum, S.Farm., M.Sc., and apt. Siti Aisiyah, M.Sc.

Indonesia's biodiversity provides a potential source of raw materials for medicines, including matoa (Pometia pinnata J.R.Forst & G. Forst), which is beneficial in the pharmaceutical and cosmetic fields. Matoa leaves contain flavonoids, alkaloids, tannins, and saponins, which function as antibacterial, antifungal, antioxidant, anticancer, and antihypertensive agents. This study examines the effects of combining Polyvinylpyrrolidone (PVP) and Talc-Mg Stearate on the physical properties of granules and lozenges made from matoa leaf extract, as well as determining the optimal formula concentration using the Simplex Lattice Design (SLD) method.

The matoa leaves were identified and then tested for moisture loss. The leaf extract was obtained through maceration with 96% ethanol and tested for moisture content and phytochemical components. Lozenges were made using the wet granulation method and evaluated for flow time, angle of repose, tap index, and moisture loss. The tablets were tested for weight uniformity, hardness, friability, and disintegration time. The data were analyzed to evaluate compliance with the established requirements, compared with the literature, and to minimize errors. Statistical analysis was conducted using Design Expert v13 with the Simplex Lattice Design model, and verification was carried out using a one-sample t-test at a 95% confidence level.

The study results showed that the combination of PVP and Talc-Mg stearate affected the physical quality of the granules and lozenges by increasing flow rate, reducing angle of repose and compressibility, increasing hardness, reducing friability, and prolonging disintegration time. The optimal concentrations of PVP at 3.07% and Talc-Mg stearate at 2.92% provided the best results based on critical parameters: flow time, angle of repose, compressibility, hardness, friability, and disintegration time.

Keywords : Lozenges, Magnesium stearate, Matoa leaves, Simplex lattice design, Talc.