

ABSTRAK

Latar Belakang. Tanaman mangga (*Mangifera indica*) telah diteliti memiliki aktivitas antibakteri penyebab karies gigi. Penelitian ini bertujuan untuk optimasi konsentrasi poloxamer 407 dan gliserin serta uji aktivitas antibakteri sediaan *mouthwash* ekstrak daun mangga (*Mangifera indica*).

Metode. Metode yang digunakan untuk memperoleh senyawa simplisia daun mangga yaitu dengan metode ekstraksi, kemudian dibuat sediaan *Mouthwash* dengan perbandingan poloxamer 407 (A) dan gliserin (B) menggunakan rancangan *Simplex Lattice Design*. Hasil uji digunakan untuk mencari formula optimum menggunakan *Design Expert Versi 13* dengan *Metode Simplex Lattice Design* (SLD). Konsentrasi ekstrak daun mangga yang digunakan adalah 10%. Evaluasi fisik yang dilakukan meliputi uji organoleptik, pH, bobot jenis, viskositas, stabilitas dan uji aktivitas antibakteri menggunakan metode sumuran. Hasil evaluasi uji organoleptik dan stabilitas dianalisis secara deskriptif sementara uji pH, bobot jenis, viskositas dan aktivitas antibakteri dianalisis secara statistik menggunakan *One Way Anova*.

Hasil. Hasil optimasi *Mouthwash* ekstrak ekstrak daun mangga (*Mangifera indica*) memberikan proporsi poloxamer 407 dan gliserin dengan perbandingan poloxamer 407 2,25% dan gliserin 15%. Uji organoleptik didapatkan warna coklat pekat dengan bau khas mint, keruh dan tidak ada endapan. Hasil uji pH berkisar 5,17-5,21, bobot jenis 1,1065-1,1095, viskositas 1,874-1,886 cps. Hasil uji antibakteri didapatkan diameter zona hambat sebesar 19,17 mm dengan kategori kuat.

Kesimpulan. Formula *mouthwash* ekstrak daun mangga memiliki evaluasi fisik sesuai dengan standar serta memiliki aktivitas antibakteri terhadap bakteri *Staphylococcus aureus*.

Kata Kunci : Optimasi, Poloxamer 407, Gliserin, Daun Mangga, Antibakteri.

ABSTRACT

Background. The antibacterial properties of the mango plant (*Mangifera indica*) against the germs that cause tooth decay have been investigated. The objective of this study is to assess the antibacterial activity of mouthwash formulations including mango leaf extract and to optimize the concentration of glycerin and poloxamer 407.

methods. Extract from mango leaves (*Mangifera indica*). Mango leaves are extracted to yield simplicial chemicals. The extracted compounds are then employed to manufacture a mouthwash formulation utilizing a Simplex Lattice Design in a poloxamer 407 (A) to glycerin (B) ratio. Using Design Expert Version 13 and the Simplex Lattice Design approach, the test results are used to determine the optimal formula. (SLD). The amount of mango leaf extract that is utilized is 10%. The physical evaluations conducted include organoleptic tests, pH, specific gravity, viscosity, stability, and antibacterial activity tests using the well diffusion method. The results of the organoleptic and stability tests were analyzed descriptively, while the pH, specific gravity, viscosity, and antibacterial activity were analyzed statistically using One Way Anova. The results were used to find the optimum formula using Design Expert Version 13 with the Simplex Lattice Design (SLD) method.

Results. The optimization of the mouthwash with mango leaf extract (*Mangifera indica*) yielded a proportion of poloxamer 407 and glycerin with a ratio of 2.25% poloxamer 407 and 15% glycerin. The organoleptic test showed a dark brown color with a characteristic mint scent, clear appearance, and no sediment. The pH test results ranged from 5.17 to 5.21, with a specific gravity of 1.1065 to 1.1095, and viscosity of 1.874 to 1.886 cps. The antibacterial test yielded an inhibition zone diameter of 19.17 mm, categorized as strong.

Conclusion. The formula for mouthwash with mango leaf extract has physical evaluations that meet the standards and exhibits antibacterial activity against *Staphylococcus aureus* bacteria.

Keywords: Optimization, Poloxamer 407, Glycerin, Mango Leaves, Antibacterial.