

INTISARI

AMISAH, D.N., 2021, FORMULASI DAN UJI AKTIVITAS ANTIBAKTERI SEDIAAN OBAT KUMUR EKSTRAK ETANOL BUAH MURBEI (*Morus alba* L.) TERHADAP BAKTERI *Streptococcus mutans* ATCC 25175. SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh apt. Mamik Ponco Rahayu, M.Si. dan apt. Siti Aisyah, M.Sc.

Obat kumur adalah larutan pembersih mulut yang digunakan untuk membunuh mikroorganisme, mencegah pembentukan plak dan karies pada gigi. Penyebab utama karies gigi adalah bakteri *Streptococcus mutans*. Buah murbei mempunyai potensi sebagai antibakteri terhadap bakteri *Streptococcus mutans* karena mengandung senyawa alkaloid, flavonoid, fenolik, dan terpenoid. Tujuan dari penelitian ini adalah mengevaluasi stabilitas sediaan obat kumur ekstrak etanol buah murbei dan pengujian aktivitas antibakteri terhadap bakteri *Streptococcus mutans* ATCC 25175.

Penelitian ini menggunakan ekstrak buah murbei yang dibuat secara maserasi, kemudian ekstrak buah murbei dibuat formulasi sediaan obat kumur dengan variasi konsentrasi 3,125%; 6,25%; 12,5%; dan 0%, serta menggunakan sediaan obat kumur pasaran "L" (kontrol positif). Evaluasi sediaan meliputi organoleptis, homogenitas, bobot jenis, pH, viskositas, dan stabilitas sediaan. Sediaan obat kumur diujikan dengan bakteri *Streptococcus mutans* ATCC 25175 menggunakan metode difusi sumuran dengan mengamati zona hambat yang terbentuk. Data uji dianalisis secara statistik menggunakan uji *Shapiro-Wilk* dilanjutkan menggunakan uji *one way ANOVA*.

Hasil penelitian menunjukkan bahwa sediaan obat kumur ekstrak buah murbei pada semua formula memiliki mutu fisik organoleptik, viskositas, dan stabilitas yang baik, sedangkan pada pengujian mutu fisik pH tidak memenuhi syarat pH sediaan obat kumur karena pengaruh dari ekstrak buah murbei (*Morus alba* L.). Pada hasil uji aktivitas antibakteri terhadap *Streptococcus mutans* ATCC 25175 dengan variasi konsentrasi 3,125%; 6,25%; dan 12,5% memiliki diameter zona hambat berturut-turut sebesar 10 mm; 14,83 mm; dan 19,5 mm. Berdasarkan hasil pengujian antibakteri formula 2 efektif karena mempunyai daya hambat sama dengan kontrol positif.

Kata kunci : antibakteri, ekstrak buah murbei, obat kumur, *Streptococcus mutans* ATCC 25175

ABSTRACT

AMISAH, D.N., 2021, FORMULATION AND ANTIBACTERIAL ACTIVITY FROM MOUTHWASH OF MULBERRY FRUIT ETHANOL EXTRACT (*Morus alba* L.) TO *Streptococcus mutans* ATCC 25175. THESIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by apt. Mamik Ponco Rahayu, M.Si. dan apt. Siti Aisyah, M.Sc.

Mouthwash is an oral cleaning solution that is used to kill microorganisms, preventing the formation of plaque and caries on the teeth. The main cause of dental caries is the bacterium *Streptococcus mutans*. Mulberry fruit has potential as an antibacterial against *Streptococcus mutans* because it contains alkaloids, flavonoids, phenolics, and terpenoids. The purpose of this study was to evaluate the stability of the mouthwash preparation of mulberry fruit ethanol extract and to test its antibacterial activity against the bacterium *Streptococcus mutans* ATCC 25175.

This study used mulberry fruit extract which was made by maceration, then the mulberry fruit extract was made into a mouthwash formulation with a concentration variation of 3.125%; 6.25%; 12.5%; and 0%, as well as using the market mouthwash preparation "L" (positive control). Evaluation of the preparation includes organoleptic, homogeneity, specific gravity, pH, viscosity, and stability of the preparation. The mouthwash preparation was tested with the bacterium *Streptococcus mutans* ATCC 25175 using the well diffusion method by observing the inhibition zone formed. The test data were analyzed statistically using the Shapirow-Wilk test followed by the one way ANOVA test.

The results showed that the mouthwash preparations of mulberry fruit extract in all formulas had good organoleptic physical qualities, viscosity, and stability, while in testing the physical quality of pH did not meet the pH requirements of mouthwash preparations due to the influence of mulberry fruit extract (*Morus alba* L.) . The results of the antibacterial activity test against *Streptococcus mutans* ATCC 25175 with a concentration variation of 3.125%; 6.25%; and 12.5% had inhibition zone diameters of 10 mm, respectively; 14.83 mm; and 19.5 mm. Based on the results of antibacterial testing, formula 2 is effective because it has the same inhibitory power as the positive control.

Keywords : antibacterial, mulberry fruit extract, mouthwash, *Streptococcus mutans* ATCC 25175