ABSTRAK

RIRIS PUSPITA ANGGRAINI, 2024. FORMULASI MOUTHWASH EKSTRAK DAUN SAGA (*Abrus precatorius Linn.*) DENGAN VARIASI KONSENTRASI GLISERIN SEBAGAI ANTIBAKTERI TERHADAP *Streptococcus mutans* ATCC 25175, PROPOSAL SKRIPSI, PROGRAM STUDI S1 FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh Dr. apt. Opstaria Saptarini, S.Farm., M.Si. dan apt. Siti Aisiyah, S.Farm., M.Sc.

Daun saga (*Abrus precatorius* Linn.) mengandung metabolit sekunder yaitu flavonoid, saponin, alkaloid, dan tanin yang memiliki aktivitas antibakteri. Efektivitas antibakteri alami dari tanaman saga dapat ditingkatkan dengan memformulasikan menjadi sediaan *mouthwash*. Penelitian ini bertujuan untuk memformulasikan sediaan mouthwash dari ekstrak daun saga (*Abrus precatorius Linn.*) dengan variasi konsentrasi gliserin sebagai agen antibakteri terhadap bakteri *Streptococcus mutans* ATCC 25175. Daun saga mengandung metabolit sekunder seperti flavonoid, saponin, alkaloid, dan tanin yang berpotensi sebagai antibakteri alami. Ekstrak diperoleh melalui maserasi menggunakan etanol 70%, dengan konsentrasi ekstrak tetap 7%, sedangkan gliserin divariasikan pada 5% ,10% dan 15%. Formula kontrol negatif (F0) tanpa ekstrak dan kontrol positif menggunakan Pepsodent Mouthwash Herbal.

Metode penelitian meliputi pembuatan sediaan mouthwash sesuai formula yang telah ditentukan, kemudian dilakukan uji stabilitas selama 14 hari penyimpanan pada dua kondisi suhu, yaitu suhu rendah (kulkas) dan suhu tinggi (oven), untuk mengetahui pengaruh variasi suhu terhadap kestabilan sediaan, yang diamati pada hari ke-0, dan hari ke-14. Aktivitas antibakteri sediaan *mouthwash* diuji terhadap bakteri *Streptococcus mutans* menggunakan metode difusi cakram dengan mengukur diameter zona hambat yang terbentuk.

Hasil penelitian menunjukkan bahwa sediaan mouthwash relatif stabil selama 14 hari penyimpanan pada kedua kondisi suhu, ditandai dengan tidak adanya perubahan signifikan pada sediaan *mouthwash*. Uji aktivitas antibakteri menunjukkan bahwa sediaan *mouthwash* mampu menghambat pertumbuhan *Streptococcus mutans*, dengan diameter zona hambat terbesar pada formula F1 sebesar 10,53 ± 2,36 mm, sedangkan kontrol positif menunjukkan zona hambat sebesar 18,1 ± 1,23 mm. Berdasarkan hasil tersebut, dapat disimpulkan bahwa sediaan mouthwash yang diformulasikan stabil secara fisik dan memiliki aktivitas antibakteri kategori sedang selama penyimpanan jangka pendek.

Kata kunci : ekstrak daun saga; *mouthwash*; antibakteri; *Streptococcus mutans.*

ABSTRACT

RIRIS PUSPITA ANGGRAINI, 2024, FORMULATION OF MOUTHWASH WITH SAGA LEAF EXTRACT (*Abrus precatorius Linn.*) USING VARIOUS GLYCERIN CONCENTRATIONS AS AN ANTIBACTERIAL AGAINST *Streptococcus mutans* ATCC 25175, PROPOSAL OF THESIS, BACHELOR OF PHARMACY, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by Dr. apt. Opstaria Saptarini, S.Farm., M.Si. dan apt. Siti Aisiyah, S.Farm., M.Sc.

Saga leaves (Abrus precatorius Linn.) contain secondary metabolites such as flavonoids, saponins, alkaloids, and tannins that exhibit antibacterial activity. The effectiveness of natural antibacterial agents derived from saga leaves can be enhanced by formulating them into a mouthwash dosage form. This study aimed to formulate a mouthwash preparation containing saga leaf extract (Abrus precatorius Linn.) with varying concentrations of glycerin as an antibacterial agent against Streptococcus mutans ATCC 25175. Saga leaves contain secondary metabolites, including flavonoids, saponins, alkaloids, and tannins, which have potential as natural antibacterial agents. The extract was obtained by maceration using 70% ethanol, with a fixed extract concentration of 7%, while glycerin concentrations were varied at 5%, 10%, and 15%. A negative control formula (F0) was prepared without extract, and a positive control used Pepsodent Herbal Mouthwash.

The research methods included the preparation of mouthwash formulations according to the predetermined formulas, followed by stability testing for 14 days under two storage temperature conditions, namely low temperature (refrigerator) and high temperature (oven), to evaluate the effect of temperature variation on the physical stability of the formulations. Observations were conducted on day 0 and day 14. The antibacterial activity of the mouthwash formulations was tested against Streptococcus mutans using the disc diffusion method by measuring the diameter of the inhibition zones formed.

The results showed that the mouthwash formulations were relatively stable during 14 days of storage under both temperature conditions, as indicated by the absence of significant changes in the preparations. Antibacterial activity testing demonstrated that the mouthwash formulations were able to inhibit the growth of Streptococcus mutans, with the largest inhibition zone observed in formula F1 at 10.53 ± 2.36 mm, while the positive control exhibited an inhibition zone of 18.1 ± 1.23 mm. Based on these results, it can be concluded that the formulated mouthwash preparations are physically stable and exhibit moderate antibacterial activity during short-term storage..

Keywords: antibacterial; mouthwash; saga leaf extract; *Streptococcus mutans*.