

ABSTRAK

ZHICIZHA ESTARA SUYIT, 2022, FORMULASI SEDIAAN PASTA GIGI GEL EKSTRAK BUAH APEL MANALAGI (*Pyrus malus var. sylvestris* L) DENGAN VARIASI KONSENTRASI CMC NA SEBAGAI ANTIBAKTERI TERHADAP *Streptococcus mutans* ATCC 25175, PROPOSAL SKRIPSI, PROGRAM STUDI S1 FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh Dr. Supriyadi, M.Si dan apt. Anita Nilawati, M. Farm.

Karies gigi dapat dialami berbagai usia yang ditandai munculnya bercak putih pada permukaan gigi oleh bakteri *S. mutans*. Buah apel manalagi mengandung senyawa yang efektif sebagai antibakteri yaitu polifenol, saponin, alkaloid, tanin dan flavonoid. Formula pasta gigi gel dengan variasi CMC-Na sebesar F1(1,5%), F2 (2%), dan F3 (2,5%). Tujuan penelitian ini untuk mengetahui pengaruh variasi konsentrasi CMC-Na terhadap mutu fisik dan aktivitas antibakteri *S. mutans* pada sediaan pasta gigi gel ekstrak buah apel manalagi

Simplisia buah apel manalagi diekstraksi dengan menggunakan etanol 70%. Ekstrak apel manalagi 15% diformulasikan menjadi 3 formula F1, F2, dan F3 dengan konsentrasi CMC-Na masing-masing yaitu 1,5, 2, dan 2,5%. Sediaan pasta gigi gel dilakukan uji mutu fisik selama 21 hari, uji stabilitas 3 siklus dan uji aktivitas antibakteri terhadap *S. mutans* dengan metode difusi cakram. Data diolah dengan statistik *Shapiro-wilk*, ANOVA dan *Kruskal Wallis*, dilanjutkan dengan uji *Paired t test* dan *Wilcoxon*

Hasil penelitian menunjukkan bahwa F1, F2, F3 berpengaruh terhadap mutu fisik antara lain menyebabkan penurunan luas daya sebar tetapi meningkatkan viskositas, pH dan sebaliknya, serta pada sediaan pasta gigi gel ekstrak apel manalagi dengan variasi konsentrasi memiliki aktivitas antibakteri dengan zona hambat berturut-turut 39,8; 39,6 dan 37,3 mm, serta didapatkan formula terbaik F1.

Kata kunci : *S.mutans*, CMC-Na, ekstrak buah apel manalagi, pasta gigi gel.

ABSTRACT

ZHICIZHA ESTARA SUYIT, 2022, FORMULATION OF MANALAGI (*Pyrus malus* var. *sylventris* L) APPLE EXTRACT CONCENTRATION WITH VARIATIONS OF CMC NA CONCENTRATION AS ANTIBACTERIAL AGAINST *Streptococcalan Streptococcus mutans*, PROKRITANAQUA1, SUKRIATORAQUA1. Supervised by Dr. Supriyadi, M.Si and apt. Anita Nilawati, M. Farm.

Dental caries can be experienced at various ages which is marked by the appearance of white spots on the tooth surface by *S. mutans* bacteria. Manalagi apples contain compounds that are effective as antibacterial, namely polyphenols, saponins, alkaloids, tannins and flavonoids. Gel toothpaste formula with variations in CMC-Na of F1 (1.5%), F2 (2%), and F3 (2.5%). The purpose of this study was to determine the effect of variations in CMC-Na concentration on the physical quality and antibacterial activity of *S. mutans* in the Manalagi apple extract gel toothpaste.

Manalagi apple simplicia was extracted using 70% ethanol. Manalagi apple extract 15% was formulated into 3 formulas F1, F2, and F3 with CMC-Na concentrations of 1.5, 2, and 2.5%, respectively. Toothpaste gel preparations were tested for physical quality for 21 days, stability test for 3 cycles and antibacterial activity test against *S. mutans* by disc diffusion method. Data were processed with Shapiro-wilk statistics, ANOVA and Krustal Wallis, followed by Paired t test and Wilcoxon

The results showed that F1, F2, F3 affected the physical quality, among others, caused a decrease in the dispersion area but increased viscosity, pH and vice versa, as well as in the preparation of Manalagi apple extract gel toothpaste with various concentrations having antibacterial activity with inhibition zones 39 successively. ,8; 39.6 and 37.3 mm, and the best formula was F1.

Keywords: *S. mutans*, CMC-Na, manalagi apple extract, gel toothpaste.