

## ABSTRAK

**HASTUTI, LP., 2022, FORMULASI GEL MULUT EKSTRAK KULIT NANAS (*Ananas comosus* (L.) Merr) DENGAN VARIASI KONSENTRASI HEC SEBAGAI ANTIBAKTERI TERHADAP BAKTERI *Streptococcus mutans* ATCC 25175, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.**

Ekstrak kulit nanas mengandung senyawa tannin, alkaloid, flavonoid, dan saponin yang bersifat antibakteri. Ekstrak kulit nanas dikembangkan dalam sediaan gel mulut untuk pencegahan karies gigi akibat aktivitas bakteri *Streptococcus mutans*. Penelitian ini bertujuan mengetahui pengaruh variasi basis HEC (*Hydroxy Ethyl Cellulosa*) terhadap mutu fisik, aktivitas antibakteri terhadap *Streptococcus mutans* ATCC 25175, dan mengetahui formula gel mulut terbaik dengan aktivitas antibakteri.

Ekstrak kulit nanas diperoleh dengan maserasi menggunakan etanol 96%. Ekstrak kulit nanas konsentrasi 6,25% dibuat tiga formula dengan variasi HEC 2,5%, 3%, dan 3,5%. Evaluasi mutu fisik sediaan gel mulut meliputi organoleptik, daya sebar, pH, daya lekat, viskositas, homogenitas, dan stabilitas sediaan *cycling test*. Pengujian aktivitas antibakteri sediaan gel mulut ekstrak nanas (*Ananas comosus* (L) Merr) terhadap *Streptococcus mutans* ATCC 25175 menggunakan metode sumuran. Analisis data kualitatif dan kuantitatif yang diperoleh menggunakan *Microsoft Excel* dan SPSS versi 24 .

Variasi konsentrasi HEC dalam sediaan gel mulut ekstrak kulit nanas berpengaruh terhadap viskositas, daya sebar, dan daya lekat sediaan. Sediaan gel mulut konsentrasi HEC 2,5% merupakan formula terbaik dalam penelitian ini yang memiliki mutu fisik terbaik dan aktivitas antibakteri paling aktif dengan diameter daya hambat sebesar 11,55 mm yang tergolong kuat.

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**Kata kunci :** Kulit nanas, *Streptococcus mutans*, gel mulut, HEC

## ABSTRACT

**HASTUTI, LP., 2022, MOUTH GEL FORMULATION OF Pineapple (*Ananas comosus* (L.) Merr) SKIN EXTRACT WITH HEC CONCENTRATION VARIATIONS AS ANTIBACTERIA AGAINST BACTERIA ATCC 25175 *Streptococcus mutans*, Thesis, FACULTY OF PHARMACY, UNIVERSITY OF SETIA BUDI, SURAKARTA.**

Pineapple peel extract contains tannins, alkaloids, flavonoids, and saponins which have antibacterial properties. Skin extract developed in oral gel preparations for the prevention of dental caries due to the activity of *Streptococcus mutans* bacteria. This study aims to determine the effect of basic variations of HEC on physical quality, antibacterial activity against *Streptococcus mutans* ATCC 25175 , and determine the best oral gel formula with antibacterial activity.

Pineapple peel extract was obtained by maceration using 96% ethanol. Pineapple peel extract with a concentration of 6.25% was made into three formulas with variations of HEC (*Hydroxy Ethyl Cellulosa*) 2.5%, 3%, and 3.5%. Evaluation of the physical quality of oral gel preparations included organoleptic, spreadability, pH, adhesion, viscosity, homogeneity, and stability of the cycling test preparation. Testing the antibacterial activity of pineapple (*Ananas comosus* (L) Merr) oral gel preparation against *Streptococcus mutans* ATCC 25175 using the well method. Analysis of qualitative and quantitative data obtained using Microsoft Excel and SPSS version 24.

Variations in the concentration of HEC in the oral gel preparation of pineapple peel extract affect the viscosity, dispersion, and adhesion of the preparation. The oral gel preparation with a concentration of 2.5% HEC was the best formula in this study which had the best physical quality and the most active antibacterial activity with an inhibitory diameter of 11.55 mm which was classified as strong.

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**Keywords:** Pineapple peel, *Streptococcus mutans*, mouth gel, HEC