

## INTISARI

**SAPUTRA, D. E. 2021. FORMULASI DAN UJI AKTIVITAS ANTIBAKTERI *Streptococcus mutans* PASTA GIGI GEL EKSTRAK DAUN SUKUN (*Artocarpus altilis*) DENGAN VARIASI KONSENTRASI KARBOPOL 940 SEBAGAI *GELLING AGENT*, SKRIPSI, FAKULTAS FARMASI UNIVERSITAS SETIA BUDI, SURAKARTA.**

Karies gigi adalah kerusakan pada jaringan keras gigi yang ditandai oleh rusaknya email atau dektin, disebabkan oleh produk yang dihasilkan bakteri *S. mutans*. Tanaman daun sukun mengandung senyawa flavonoid, alkaloid, saponin dan tanin bermanfaat sebagai antibakteri. Pasta gigi gel dengan ekstrak bahan alam membutuhkan *gelling agent* karbopol 940 dengan konsentrasi 0,5-2%. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi karbopol 940 terhadap mutu fisik dan aktivitas antibakteri *S. mutans* pasta gigi gel ekstrak daun sukun.

Ekstrak daun sukun diperoleh dengan metode maserasi. Konsentrasi ekstrak daun tanaman sukun 20% diformulasikan menjadi pasta gigi gel dengan enam formula yaitu 3 basis dan 3 basis dengan ekstrak dan variasi konsentrasi karbopol 940 yaitu 0,5; 1; dan 1,5g. Sediaan pasta gigi gel diuji mutu fisik selama 21 hari, uji stabilitas 6 siklus dan uji aktivitas antibakteri terhadap *S. mutans* menggunakan metode difusi sumuran. Data diolah dengan statistik *Shapiro-wilk*, dilakukan uji *one way anova/kruskal wallis*, dilanjutkan *uji paired t test/Wilcoxon*.

Hasil penelitian menunjukkan bahwa variasi konsentrasi karbopol 940 berpengaruh terhadap mutu fisik dan menyebabkan penurunan luas daya sebar tetapi meningkatkan viskositas, ph dan sebaliknya. Serta pada sediaan pasta gigi ekstrak daun sukun dengan variasi karbopol 940 memiliki aktivitas antibakteri dengan zona hambat berturut-turut 21,50; 22,50: dan 22,87 mm.

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**Kata kunci :** *S. mutans*, karbopol 940, ekstrak daun sukun, dan pasta gigi gel

## ABSTRACT

**SAPUTRA, D. E. 2021, FORMULATION AND TEST OF ANTIBACTERIAL ACTIVITY OF *Streptococcus mutans* TOOTH PASTE GEL BREADFRUIT (*Artocarpus altilis*) LEAVES EXTRACT WITH VARIANCE CONCENTRATION OF CARBOPOL 940 AS GELLING AGENT, SKRIPSI, FAKULTAS FARMASI UNIVERSITAS SETIA BUDI SURAKARTA.**

Dental caries is a disease that is damage to the hard tissues and they are characterized by the destruction of enamel or dentin, the dental damage is result from products that are produced by *S.mutans* bacteria. Breadfruit leaf contains many compounds there are flavonoid, alkaloid, saponin and tannin that use for antibacteria. Formulation of gel toothpaste with extract of natural ingredients need gelling agent carbopol 940 with range 0.5-2 %. This study aimed to determine the effect of variations in the concentration of carbopol 940 on physical quality and antibacterial activity of gel toothpaste.

Breadfruit leaf extract was obtained by maceration method. Breadfruit leaf extract with a concentration of 20% was formulated into six formulas of gel toothpaste there were three as controls and three controls with extract breadfruit leaf and 3 variations concentration of carbopol 940 there were 0,5; 1; and 1,5g. The gel toothpaste preparation was evaluated for physical quality for 21 days, stability test for 6 cycles and antibacterial activity *S.mutans* was used diffusion method. The result obtained were analyzed with the *shapiro-wilk* statistics, and was continued by one way ANOVA/Kruskal walis test, then used paired t test/Wilcoxon.

The result showed that increasing the concentration of carbopol 940 decreased the dispersion area but increased the viscosity, pH and vice versa. As well as the preparation of breadfruit leaf extract toothpaste with a variation of carbopol 940 has antibacterial activity with inhibition zones of 21,50; 22,50; and 22,87 mm, respectively.

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**Keyword :** *S. mutans*, carbopol 940, gel toothpaste, breadfruit leaf extract.