# SKRIPSI

# PENGARUH EKSTRAK DAUN KOPI ARABIKA *(Coffea arabica L.)* TERHADAP DAYA HAMBAT BAKTERI *Streptococcus mutans* ATCC 25175

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**Sebagai salah satu syarat**
**untuk memperoleh gelar sarjana pada**
**Fakultas Kedokteran Gigi Universitas Andalas**


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# PENGARUH EKSTRAK DAUN KOPI ARABIKA *(Coffea arabica L.)* TERHADAP DAYA HAMBAT BAKTERI *Streptococcus mutans* ATCC 25175

Oleh: Usna Khatimah Abel

## ABSTRAK

**Latar Belakang**: Kebersihan mulut sangat penting dalam menjaga kesehatan gigi, salah satunya dengan mengendalikan pertumbuhan bakteri *Streptococcus mutans* yang berperan utama dalam pembentukan karies gigi. Penggunaan agen antibakteri seperti klorheksidin memiliki efek samping, sehingga diperlukan alternatif alami seperti ekstrak daun kopi arabika (*Coffea arabica L.*) yang mengandung senyawa bioaktif antibakteri. **Tujuan:** Mengetahui pengaruh ekstrak daun kopi arabika *(Coffea arabica L.)* terhadap daya hambat pertumbuhan bakteri *Streptococcus mutans* ATCC 25175. **Metode:** Penelitian ini merupakan penelitian eksperimen laboratorium dengan rancangan *posttest only control group design*. Pembuatan esktrak daun kopi arabika dengan metode maserasi menggunakan pelarut etanol 70%. Ekstrak diencerkan menggunakan *aquadest* untuk mendapatkan ekstrak dengan konsentrasi 75%, 50%, dan 25%. Uji daya hambat dilakukan dengan metode difusi cakram menggunakan media agar darah. Data dianalisis menggunakan *One Way ANOVA* dan *Post Hoc LSD*. **Hasil**: Hasil penelitian menunjukkan ekstrak daun kopi arabika mampu menghambat pertumbuhan *Streptococcus mutans* ATCC 25175, dengan zona hambat terbesar pada konsentrasi 75% (6,07 mm), diikuti 50% (4,52 mm), dan 25% (2,26 mm). Terdapat perbedaan signifikan antara konsentrasi 25% dan 75% ($p$ = 0,000), tetapi tidak antara konsentrasi 25% dan 50% serta 50% dan 75%. **Kesimpulan:** Ekstrak daun kopi arabika efektif menghambat *Streptococcus mutans* ATCC 25175, dengan konsentrasi 75% paling optimal. Temuan ini mendukung potensi daun kopi arabika sebagai bahan alami pencegah karies, meski diperlukan penelitian lebih lanjut untuk pengembangan aplikasinya.

**Kata Kunci:** *Streptococcus mutans*, daun kopi arabika, antibakteri, karies gigi, ekstrak etanol.

# *THE EFFECT OF ARABICA COFFEE LEAF EXTRACT (Coffea arabica L.) ON THE INHIBITION OF Streptococcus mutans ATCC 25175*

By: Usna Khatimah Abel

## *ABSTRACT*

***Background:*** *Oral hygiene is crucial for maintaining dental health, particularly in controlling the growth of Streptococcus mutans, a primary contributor to dental caries. While chlorhexidine is commonly used as an antibacterial agent, its side effects necessitate the exploration of natural alternatives such as Arabica coffee leaf extract (Coffea arabica L.), which contains bioactive compounds with antibacterial properties.* ***Objective:*** *This study aimed to examine the effect of Arabica coffee leaf extract (Coffea arabica L.) on the inhibition of Streptococcus mutans ATCC 25175 growth.* ***Methods:*** *This laboratory experimental study employed a posttest-only control group design. The Arabica coffee leaf extract was prepared using maceration with 70% ethanol solvent and subsequently diluted with aquadest to achieve concentrations of 75%, 50%, and 25%. The antibacterial activity was assessed using the disk diffusion method on blood agar media. Data were analyzed using One-Way ANOVA and Post Hoc LSD tests.* ***Results:*** *The findings demonstrated that Arabica coffee leaf extract effectively inhibited the growth of Streptococcus mutans ATCC 25175, with the highest inhibition zone observed at 75% concentration (6.07 mm), followed by 50% (4.52 mm) and 25% (2.26 mm). A statistically significant difference was noted between the 25% and 75% concentrations ($p < 0.05$), while no significant differences were observed between 25% and 50% or 50% and 75%.* ***Conclusion:*** *Arabica coffee leaf extract exhibits inhibitory effects against Streptococcus mutans ATCC 25175, with the 75% concentration showing the highest efficacy. These results support the potential of Arabica coffee leaves as a natural agent for caries prevention, though further research is required to explore its practical applications.*

***Keywords:*** *Streptococcus mutans, Arabica coffee leaves, antibacterial, dental caries, ethanol extract.*