

# The difference in antibacterial effect between ethanol extracts of *Citrus aurantifolia* and *Citrus limon* against *Streptococcus mutans*: an in vitro study

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## The difference in antibacterial effect between ethanol extracts of *Citrus aurantifolia* and *Citrus limon* against *Streptococcus mutans*: an *in vitro* study

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### ABSTRACT

**Objectives:** The prevalence of dental caries in Indonesia tends to increase every year. One of the main causes of dental caries is *Streptococcus mutans* (*S. mutans*). *S. mutans* is one of normal bacterial flora in the oral cavity, but this will be pathogenic and cause caries if the number continues to increase. Herbs that contain antibacterial ingredients are lime peel and lemon peel. The antibacterial components that they contain are saponin, minyak atsiri, fenol, alkaloid, tanin, and flavonoid. The aim of this study was to compare the antibacterial activity between ethanol extracts of lime peels and lemon peels against *S. mutans* in *in vitro* study.

**Materials and Methods:** This was an experimental laboratory study using well diffusion method to get inhibition zone. The concentration of ethanol extracts of lime peels and lemon peels used were 0%, 3.125%, 6.25%, 12.5%, 25%, 50%, and 100%. The inhibition zones were compared by 1-way analysis of variance, Pearson correlation test, regression test, and unpaired *t*-test.

**Results:** The inhibition zones on the lime peels were formed at concentrations of 6.25%, 12.5%, 25%, 50%, and 100%, those on the lemon peels were formed at concentrations of 50% and 100%. There was a difference in the inhibition zones between the ethanol extract of lime peel and lemon peels against *S. mutans* inhibition zone.

**Conclusions:** Antibacterial activity of ethanol extract of lime peel was stronger than that of lemon peel on the growth of *S. mutans* in *in vitro* study.

**Keywords:** Antibacterial activity; Ethanol extract; Inhibition zone; Lemon peels; Lime peels; *Streptococcus mutans*

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