

COMPARISON OF ANTIBACTERIAL EFFECTIVENESS AGAINST *Enterococcus Faecalis* BETWEEN JAVANESE TURMERIC EXTRACT (*Curcuma Zanthorrhiza*) and RED GINGER (*Zingiber Officinale Var Rubrum*)

Vincent Pang¹, Florenly², Martono³

¹Faculty of Dentistry, Universitas Prima Indonesia, Medan

²Department of Orthodontics, Faculty of Dentistry, Universitas Prima Indonesia, Medan

³Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Prima Indonesia

Abstract

Introduction: Dental and oral health issues affect nearly half the global population, with *Enterococcus Faecalis* contributing to infections and showing antibiotic resistance. Javanese turmeric (*Curcuma Zanthorrhiza*) and red ginger (*Zingiber officinale var. rubrum*), rich in antibacterial compounds, offer potential alternatives. This study explores their effectiveness at concentrations above 50% against *E. Faecalis*.

Method: This experimental study analyzed the antibacterial effects of temulawak and red ginger extracts against *Enterococcus Faecalis*. Extracts (50%, 60%, 75%) were prepared, tested on bacterial cultures, and compared to a NaOCl 2,5% control. Inhibition zones were measured, and data were analyzed using SPSS with ANOVA, Kruskal-Wallis tests and Post-hoc tukey test.

Results: Red ginger extract (RGE) (50%, 60%, 75%) inhibited *Enterococcus Faecalis* with average zones of 10.76 ± 0.38 , 12.86 ± 0.53 , and 13.64 ± 0.55 , respectively. Temulawak extract (ET) showed higher effectiveness, averaging 12.20 ± 0.23 , 13.84 ± 0.63 , and 14.44 ± 0.39 . The 2.5% NaOCl control group had an inhibition zone of 13.38 ± 0.79 . RGE 50% and ET 50% show the most significant differences compared to other groups ($p < 0.05$). RGE 60%, RGE 75%, and RGE 60% show fewer significant differences, indicating similarity with other treatments.

Conclusion: RGE 50% and ET 50% show the most significant in the inhibition of *Enterococcus Faecalis*. Control group has significant differences with some treatment groups but not all, suggesting some treatments have effects similar to the control.

Keywords: Antibacterial, *Curcuma Zanthorrhiza*, *Enterococcus Faecalis*, extract, *Zingiber Officinale Var Rubrum*