

INTISARI

Penelitian ini dilatarbelakangi oleh masih tingginya risiko kontaminasi bakteri *Enterococcus faecalis* pada material cetak alginat yang digunakan dalam prosedur penetakan model kerja. Bakteri ini bersifat resisten dan mampu bertahan pada permukaan cetakan, yang dapat menyebabkan berbagai penyakit, sehingga diperlukan bahan *self-disinfectant* yang efektif, aman, dan mudah diaplikasikan. Daun sirih hijau (*Piper betle L.*) dipilih karena mengandung senyawa antibakteri seperti flavonoid, tanin, saponin, dan fenol. Tujuan penelitian ini untuk mengetahui pengaruh konsentrasi infusa daun sirih hijau pada manipulasi material cetak alginat terhadap daya hambat pertumbuhan *E. faecalis*.

Penelitian ini menggunakan metode eksperimental laboratoris dengan material alginat yang dibagi menjadi tiga kelompok perlakuan, yaitu konsentrasi infusa 0%, 25%, dan 50%. Cakram alginat dibentuk dengan cara memanipulasi alginat dengan penambahan infusa sesuai konsentrasi, kemudian diuji zona hambatnya menggunakan metode difusi cakram pada media *Mueller-Hinton Agar* yang telah diinokulasi *E. faecalis*. Pengukuran diameter zona hambat dilakukan setelah diinkubasi selama 24 jam pada suhu 37°C. Data dianalisis menggunakan uji ANAVA satu jalur dilanjutkan uji *Post-hoc Games Howell* untuk mengetahui perbedaan antar kelompok ($p < 0,05$).

Hasil penelitian menunjukkan rerata diameter zona hambat sebesar $0,00 \pm 0,00$ mm (0%), $1,56 \pm 0,13$ mm (25%), dan $2,73 \pm 0,11$ mm (50%). Uji ANAVA menunjukkan adanya perbedaan bermakna antar kelompok ($p < 0,05$). Uji *post-hoc Games Howell* menunjukkan perbedaan bermakna antar seluruh kelompok konsentrasi. Kesimpulan penelitian ini adalah peningkatan konsentrasi 0%, 25% dan 50% infusa daun sirih hijau sebagai *self-disinfectant* pada manipulasi material cetak alginat berpengaruh terhadap daya hambat pertumbuhan *E. faecalis*.

Kata Kunci: *Enterococcus faecalis*, daun sirih hijau, alginat, infusa

ABSTRACT

This study was motivated by the persistently high risk of *Enterococcus faecalis* bacterial contamination on alginate impression material used in making working models. This bacterium is resistant and can survive on the impression surface, which may cause various diseases; therefore, an effective, safe, and easy-to-apply self-disinfectant is needed. Green betel leaf (*Piper betle* L.) was selected because it contains antibacterial compounds such as flavonoids, tannins, saponins, and phenols. The aim of this study was to determine the effect of the concentration of green betel leaf infusion used during the manipulation of alginate impression material on its inhibitory effect against the growth of *E. faecalis*.

This study used a laboratory experimental method with alginate material divided into three treatment groups: 0%, 25%, and 50% infusion concentrations. Alginate discs were prepared by manipulating the alginate with the addition of the infusion according to each concentration, then the inhibition zone was tested using the disc diffusion method on Mueller–Hinton Agar inoculated with *E. faecalis*. The diameter of the inhibition zone was measured after incubation for 24 hours at 37°C. The data were analyzed using one-way ANOVA followed by the Games Howell post hoc test to determine differences among groups ($p < 0.05$).

The results showed mean inhibition-zone diameters of 0.00 ± 0.00 mm (0%), 1.56 ± 0.13 mm (25%), and 2.73 ± 0.11 mm (50%). One-way ANOVA indicated a significant difference among groups ($p < 0.05$). The Games Howell post hoc test showed significant differences among all concentration groups. In conclusion, increasing the concentration of green betel leaf infusion (0%, 25%, and 50%) as a self-disinfectant during manipulation of alginate impression material affected the inhibition of *E. faecalis* growth.

Keywords: *Enterococcus faecalis*, green betel leaf, alginate, infusion