

INTISARI

Salah satu tahapan penting dalam perawatan endodontik adalah irigasi saluran akar. Bahan irigasi yang paling banyak digunakan adalah natrium hipoklorit (NaOCl), namun bersifat toksik terhadap jaringan periapikal. Diperlukan larutan irigasi dari bahan alami yang memiliki potensi antibakteri, salah satunya adalah biji kelor atau *Moringa oleifera*. Bakteri yang sering ditemukan persisten pasca perawatan saluran akar yaitu *Enterococcus faecalis*. Tujuan penelitian ini adalah untuk mengetahui daya antibakteri ekstrak etanol biji *M. oleifera* konsentrasi 37,5%, 50%, 67,5% dan 75% terhadap *E. faecalis*.

Penelitian eksperimental laboratorium menggunakan *post test only control group design* untuk mengetahui daya antibakteri ekstrak etanol biji *M. oleifera* konsentrasi 37,5%, 50%, 67,5% 75%, kontrol positif NaOCl 2,5%, dan kontrol negatif dimetil sulfoksida (DMSO), dengan 4 replikasi. Pengujian daya antibakteri terhadap *E. faecalis* ATCC 29212 dilakukan dengan metode difusi cakram kertas pada media Mueller Hinton Agar (MHA). Diameter zona hambat diukur menggunakan caliper. Data dianalisis dengan uji ANOVA satu jalur dilanjutkan LSD.

Hasil penelitian menunjukkan bahwa kelompok NaOCl 2,5% menghasilkan zona hambat terbesar yaitu $16,38 \pm 0,95$ mm, diikuti kelompok ekstrak etanol biji *M. oleifera* 75% yaitu $13,51 \pm 0,49$ mm, dan terkecil pada kelompok ekstrak konsentrasi 37,5% yaitu $4,42 \pm 0,27$ mm. Kontrol negatif (DMSO) tidak menghasilkan zona hambat. Semua kelompok ekstrak etanol biji *M. oleifera* secara statistik signifikan menghambat pertumbuhan bakteri *E. faecalis* ATCC 29212 ($p < 0,05$). Peningkatan konsentrasi ekstrak etanol biji *M. oleifera* secara signifikan menghasilkan daya hambat yang lebih baik terhadap bakteri *E. faecalis* ATCC 29212 ($p < 0,05$).

Disimpulkan bahwa ekstrak etanol biji *M. oleifera* konsentrasi 37,5%, 50%, 62,5% dan 75% memiliki daya antibakteri terhadap *E. faecalis* ATCC 29212. Ekstrak etanol biji *M. oleifera* konsentrasi 75% memiliki daya antibakteri paling kuat dibandingkan konsentrasi ekstrak lainnya.

Kata kunci : ekstrak biji kelor, *Moringa oleifera*, daya antibakteri, *Enterococcus faecalis*

ABSTRACT

One of the important stages in endodontic treatment is root canal irrigation. The most widely used irrigant is sodium hypochlorite (NaOCl), but it is toxic to periapical tissue. Irrigant solutions from natural ingredients that have antibacterial potential are needed, one of which is *Moringa oleifera* seeds. Bacteria that are often found persistent after root canal treatment are *Enterococcus faecalis*. The purpose of this study was to determine the antibacterial effect of the ethanol extract of *M. oleifera* seeds at concentrations of 37.5%, 50%, 67.5% and 75% against *E. faecalis*.

Experimental laboratory research with post-test only control group design to determine antibacterial effect ethanol extract of *M. oleifera* seeds at concentrations of 37.5%, 50%, 67.5%, 75%, positive control NaOCl 2.5%, and negative control dimethyl sulfoxide (DMSO) was carried out with 4 times replication. Antibacterial activity was tested against *E. faecalis* ATCC 29212 using paper disc diffusion method on Mueller Hinton Agar (MHA) media. The diameter of the inhibition zone formed was measured using a caliper. Data were analyzed by one-way ANOVA test followed by LSD.

The results showed that the 2.5% NaOCl group produced the largest inhibition zone of 16.38 ± 0.95 mm, followed by the 75% extract group of 13.51 ± 0.49 mm, and the smallest was the 37.5% extract group of 4.42 ± 0.27 mm. The negative control (DMSO) did not produce an inhibition zone. All groups of *M. oleifera* seed ethanol extract significantly inhibited the growth of *E. faecalis* ATCC 29212 ($p < 0.05$). The increase in the concentration of the ethanolic extract of *M. oleifera* seeds resulted in significantly better inhibiting the growth of *E. faecalis* ATCC 29212 ($p < 0.05$).

It can be concluded that ethanol extract of *M. oleifera* seeds at concentrations of 37.5%, 50%, 62.5% and 75% had antibacterial effects against *E. faecalis* ATCC 29212. Ethanol extract of *M. oleifera* seeds at 75% had the strongest antibacterial effect compared to other extract concentrations.

Keywords : *Moringa oleifera* seed extract, *Moringa oleifera*, antibacterial effect, *Enterococcus faecalis*