ABSTRACT

ANTIBACTERIAL EFFECTIVENESS OF SIWAK (Salvadora persica) ETHANOL EXTRACTS VARIOUS CONCENTRATIONS MINIMUM INHIBITORY CONCENTRATION (MIC) AND MINIMUM BACTERICIDAL CONCENTRATION (MBC) ACTINOMYCES.

(IN IN VITRO)

Actinomyces spp. is one of the dominant bacteria in the root canal which causes many cases of failure in root canal treatment. Root canal irrigation material had not been effective against Actinomyces spp. The goal of this research is to determine the effectiveness of antibacterial siwak (Salvadora persica) ethanol extracts various concentrations in inhibiting growth and killing Actinomyces spp. by looking for MIC and MBC values.

This type of research uses an experimental laboratory with a post test only control group design, consisting of 5 groups, namely, the negative control group (siwak ethanol extract without bacterial suspension), positive control (Actinomyces spp.), 3 treatment groups giving siwak ethanol extract with concentration of 25%, 30% and 35%. The total samples are 34 samples with maceration and dilution methods.

The results of the research concentrations of 25%-35% represented the growth of fertile bacteria, so it had not been effective in inhibiting growth and killing bacteria. The research was continued at a concentration of 50%, 75%, dan 100% which will be Kruskal-Wallis and Mann-Whitney non parametric statistics which show significant p-value = 0.038 ($p < 0.05$) in siwak ethanol extract against Actinomyces spp.

The results represented that the siwak ethanol extract had a MIC value was effective at a concentration of 50%, while the MBC value was effective at a concentration of 75%.

Keywords : *Siwak* (*Salvadora persica*)*, Root Canal Irrigation Material, Actinomyces spp., Antibacterial*

ABSTRAK

EFEKTIVITAS ANTIBAKTERI EKSTRAK ETANOL SIWAK (*Salvadora persica*) BERBAGAI KONSENTRASI DALAM MENGHAMBAT PERTUMBUHAN DAN MEMBUNUH *ACTINOMYCES SPP.* (SECARA *IN VITRO*)

Actinomyces spp. merupakan salah satu bakteri dominan dalam saluran akar yang banyak menyebabkan kasus kegagalan dalam perawatan saluran akar. Bahan irigasi saluran akar belum efektif melawan *Actinomyces spp.* Tujuan penelitian ini adalah untuk mengetahui efektivitas antibakteri ekstrak etanol siwak (*Salvadora persica*) berbagai konsentrasi dalam menghambat pertumbuhan dan membunuh *Actinomyces spp.* dengan mencari nilai KHM dan KBM.

Jenis penelitian menggunakan laboratorium eksperimental dengan rancangan *post test only control group design,* terdiri dari 5 kelompok yaitu, kelompok kontrol negatif (ekstrak etanol siwak tanpa suspensi bakteri), kontrol positif (bakteri *Actinomyces spp.*), 3 kelompok perlakuan pemberian ekstrak etanol siwak dengan konsetrasi 25%, 30% dan 35%. Total sampel penelitian yaitu 34 sampel dengan metode maserasi dan dilusi.

Hasil uji konsentrasi 25%-35% menunjukkan adanya pertumbuhan bakteri subur, sehingga belum efektif dalam menghambat pertumbuhan dan membunuh bakteri. Penelitian dilanjutkan pada konsentrasi 50%, 75% dan 100% yang akan di uji statistik non parametrik *Kruskal-Wallis* dan *Mann-Whitney* yang menunjukkan hasil signifikan *p-value* = 0,038 ($p<0,05$) pada ekstrak etanol siwak terhadap *Actinomyces spp.*

Hasil penelitian menunjukkan bahwa ekstrak etanol siwak memiliki nilai KHM efektif di konsentrasi 50%, sedangkan nilai KBM efektif di konsentrasi 75%.

Kata Kunci : Siwak (*Salvadora persica*), Bahan irigasi saluran akar, *Actinomyces spp.*, Antibakteri