

In vitro comparison of the antimicrobial efficacy of Zataria multiflora®[®], Chlorhexidine and Sodium Hypochlorite against Enterococcus faecalis and Candida albicans

Yaghooti Khorasani MM¹, Bahramabadi R², Moghbeli H³

¹Assistant Professor, Endodontics Dept, Dental school, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

²MSc, Microbiology Dept, Medical school, Rafsanjan university of medical sciences, Rafsanjan, Iran

³Dentist

Abstract

Background and Aim: Suitable root canal irrigants have low toxicity and high antimicrobial efficacy. The aim of the present study was to compare the in vitro inhibitory effects of Zataria Multiflora Boiss essential oil, Chlorhexidine and Sodium hypochlorite on the growth of Enterococcus faecalis and Candida albicans.

Materials and Methods: In this in vitro experimental study, 54 samples of the microorganisms under study were cultured on Mueller Hinton agar with Kirby Bauer method. Paper discs were impregnated with 100 mg/ml and 50 mg/ml concentrations of Zataria multiflora essential oil, 0.2% and 0.1% Chlorhexidine and 1% Sodium hypochlorite and were placed on the culture medium. After 48 hours, the inhibition zones were measured in millimeters. Data were analyzed by SPSS software and by ANOVA and Tukey tests.

Result: The inhibition zone of 1% Sodium hypochlorite against Enterococcus faecalis was of greatest diameter followed respectively by 0.2% Chlorhexidine, 0.1% Chlorhexidine, 100 mg/ml concentration of Zataria multiflora essential oil, while 50 mg/ml concentration of this essential oil had the least effect on this microorganism. 100 mg/ml concentration of Zataria multiflora essential oil was most effective against Candida albicans followed respectively by 50 mg/ml concentration of this essential oil, 1% Sodium hypochlorite, 0.2% Chlorhexidine and 0.1% Chlorhexidine which showed the least efficacy.

Conclusion: According to the results, 1% Sodium hypochlorite had the highest inhibitory effect on Enterococcus faecalis, while 100 mg/ml concentration of Zataria multiflora essential oil had the highest inhibitory effect on Candida albicans.

Keywords: *Zataria multiflora, Chlorhexidine, Sodium hypochlorite, Enterococcus faecalis, Candida albicans*