

# COMPARATIVE ANALYSIS OF PEROXYGEN POWDERED SYSTEM FOR RAPID DISINFECTION OF GUTTA-PERCHA CONES

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## INTRODUCTION

The success of root canal therapy relies on thorough disinfection and the use of aseptic techniques. A contaminated obturating material can reintroduce microorganisms to the root canal system. The Peroxygen Powdered System has been reported to be effective against microorganisms, viruses, etc.

## AIM

The aim of this study is to analyse the effectiveness of Peroxygen Powdered System (0.4 % peracetic acid) for rapid disinfection of gutta-percha cones

## MATERIALS AND METHOD

INNOCULATION OF GUTTA PERCHA CONES WITH *ENTEROCOCCUS FAECALIS*



### GROUP A

### GROUP B

### GROUP C

### GROUP D

### GROUP E

3% Sodium Hypochlorite (3% NaOCl) n=22      2% Chlorhexidine (2% CHX) n=22      Peracetic Acid 0.4% PAA n=22      Distilled Water (Positive Control) n=22      Autoclave (Negative Control) n=22

Gutta percha cones were treated with above solutions for 5 minutes

20 cones from each group transferred to test tubes containing 10 mL of Brain Heart Infusion (BHI) broth to check for turbidity (presence of bacteria)

2 cones from each group transferred to test tubes for culture in Brain Heart Infusion (BHI) media to calculate CFU (colony forming Units)

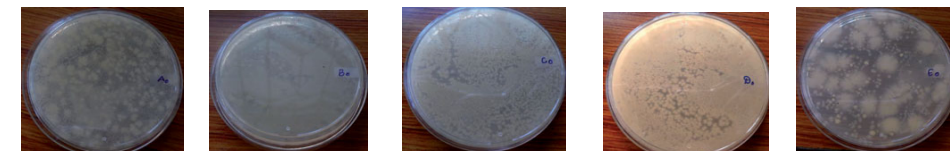
## REFERENCE

- 1) Siqueira JF Jr., da Silva CH, et al. Effectiveness of four chemical solutions in eliminating *Bacillus subtilis* spores on gutta-percha cones. *Endodontics & Dental Traumatology* 1998;14:124-6.2.
- 2) Nabeshima, Cleber K., et al. "Effectiveness of different chemical agents for disinfection of gutta-percha cones." *Australian Endodontic Journal* 37.3 (2011): 118-121.

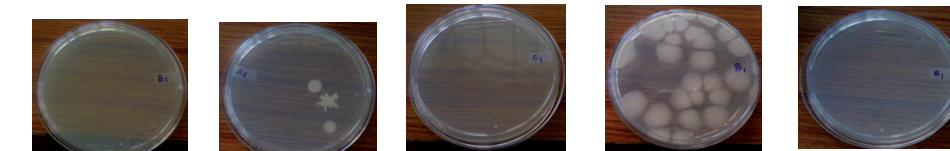
## RESULTS

GROUP	TEST TUBE	24 HOURS		48 HOURS		72 HOURS		INITIAL CFU	FINAL CFU
		+ve	-ve	+ve	-ve	+ve	-ve		
Group A (3% NaOCl)	10	0	10	0	10	0	10	5.5 x10 <sup>8</sup>	-
Group B (2% CHX)	10	0	10	2	8	2	8	6.2 x10 <sup>8</sup>	0.002 x10 <sup>8</sup>
Group C (1% PAA)	10	0	10	0	10	0	10	5.8 x10 <sup>8</sup>	-
Group D (Distilled Water) Positive Control	10	10	0	10	0	10	0	7.0 x10 <sup>8</sup>	3.2x10 <sup>8</sup>
Group E (Autoclave) Negative Control	10	0	10	0	10	0	10	3 x10 <sup>8</sup>	-

Initial



Final



A B C D E

\*CFU – Colony Forming Units

## STATISTICAL ANALYSIS

The data obtained were evaluated using the chi-square test with a P value set at <0.05 and the result was found to be significant (P<0.0001) when independently evaluating presence / absence of bacterial growth at 24 hr, 48 hr & 72 hr in our test groups A, B, and C with the control groups D and E.

## DISCUSSION

Heavy turbidity occurred in all positive controls, and no growth was detected in negative controls. Peroxygen Powdered System containing (0.4% peracetic acid) is as effective as sodium hypochlorite disinfection. However, 2% chlorhexidine showed mild turbidity after 48 hours.

## CONCLUSION

Peracetic acid 0.4% is as effective as 3% sodium hypochlorite for disinfection of gutta-percha cones.

