Evaluation of Antimicrobial Effect of Three Resin Based Sealers (An In Vitro Study)

A thesis

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بسم الله الرحمن الرحيم

وسع ربنا كل شئ علما على الله توكلنا

ربنا افتح بيننا وبين قومنا بالحق

وانت خير الفاتحين

صدق الله العظيم

سورة الأعراف {89}

DEDICATION

To those who gave me much care and support

My beloved Husband

The most kind and wonderful partner ever

My dear Mother

The light & care that leads the way

My dear Father

The wisdom that keeps me going on

My lovely daughters

The source of my smile

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BHI	:	Brain Heart Infusion
PCR	:	Polymerase chain reaction
E. faecalis	:	Enterococcus faecalis
ADT	:	Agar Diffusion Test
DCT	:	Direct Contact Test
MDCT	:	Modified direct contact test
MGP	:	Medicated Gutta Percha
CFU	:	Colony forming unit
GTP	:	Green tea polyphenols
PBS	:	Phosphate buffered saline
TSA	:	Teflon seeded agar
OD	:	Optical density

The main goal of root canal treatment is to fight against microorgamisms that are existing in the root canal system weither to remove, prevent re-entrance or to entomb it in the canal system.

Chemo-mechanical preparation with different systems and the use of medication in addition to proper obturation techniques that may contain additive medication are also used to act against this infection.

With all the improvements in endodontic techniques, we never achieve the perfect system that can completely eradicate the microorganism from the root canal system.in a comparison between the endodontic rotary files preparation and the manual step back technique, the findings showed that none of these techniques resulted in bacteria free canals. Several studies have shown the presence of microorganism even after a comprehensive chemo-mechanical preparation of a complex root canal system.

Microorganisms infecting root canal dentin might adhere superficially to the dentinal wall or penetrate deeper into the dentinal tubules. Enterococcus faecalis is a resilient bacterium frequently recovered from obturated root canals with signs of apical periodontitis. The presence of E. faecalis at the time of obturation can significantly reduces the success rate of root canal treatment.

Therefore it is advantageous for the sealer to exert some antimicrobial activities as the last element in the treatment regimen. The antimicrobial properties of the sealers should ensure the elimination of bacteria as well as prevent the re-

infection, specially as the bacteriological sampling before obturation is not a routine procedure. That's why root canal sealers with good antimicrobial activity are desired to kill surviving microorganisms

Although predictable clinical results have been reported with the use of nonbonding root canal sealers, there has been a continuous quest for alternative sealers or techniques that bond simultaneously to canal wall dentine as well as filling material.

Therefore it was thought to be of value to conduct study to compare between three different resin sealers currently available in the market regarding their antibacterial effect.