

Evaluation of Antibacterial effect of different irrigation Protocols Invitro Study

Thesis

Submitted for Partial Fulfillment of Requirements of Master Degree in *Endodontics*

 $\mathbf{B}\mathbf{y}$

Ahmed Osama Ahmed

BDS

Faculty of Dentistry - Ain Shams University

Under supervision of

Prof. Dr. Kariem Mostafa El Batouty

Vice Dean, Professor of Endodontics, Faculty of Dentistry, Ain Shams University

Associate Prof. Dr. Medhat Taha Elfaramawy

Associate Professor of Endodontics, Faculty of Dentistry, Ain Shams University

> Faculty of Dentistry Ain Shams University 2019

بسم الله الرحمن الرحيم

﴿ وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا }

سورة النساء آية ١١٣

Acknowledgement

First and foremost, thanks are due to ALLAH the most Gracious and the most merciful.

I would like to express my deepest gratitude and appreciation to **Prof. Dr. Kariem Mostafa El Batouty**, Professor of Endodontics, Vice Dean, Faculty of Dentistry, Ain Shams University for his precious effort, meticulous advice and his kind treatment.

I am specially and sincerely grateful to Associate. Prof. Dr. Medhat Taha Elfaarmawy, Assistant Professor of Endodontics, Faculty of Dentistry, Ain Shams University for his continuous and genuine assistance, patience and his valuable editing advices.

Last but not least, my special gratitude is is to Prof.Dr. Soha
Abd ElRahman Professor of microbiology, faculty of medicine Ain
shams university for her precious help and for standing by me side
through the microbiology part of this study

Dedication

I dedicate this work to all the people who helped me to be a better person, especially my parents, my teachers and my beloved wife.

Asking God to bless them all.

Table of Contents

List of Tables	II
List of Figures	III
List of Diagrams	IV
Introduction	1
Review of literature	3
Aim of the study	43
Materials and Methods	44
Results	57
Discussion	71
Summary	86
Conclusion & Recommendations	88
References	89
Arabic Summary	_

LIST OF TABLES

Table no.	Title	Page no.
1	Classification of samples	48
2	Effect of different irrigation techniques with MTAD	58
3	Effect of different irrigation techniques with QMIX	60
4	Effect of different irrigation techniques with NaOCl	62
5	Effect of different irrigation solutions with Ultrasor agitation	
6	Effect of different irrigation solutions with Without agitation	
7	Effect of different irrigation solutions with Hydrodynan agitation	
8	The mean, standard deviation (SD) values of Bacter count of different groups	

LIST OF FIGURES

Fig. no.	Title	Page no.
1	Passive ultrasonic irrigation device SATELEC Acteon	45
2	Irrisafe PUI tips	45
3	Decoronated root of lower 5, cut at length of 16mm sealed with 2 layers of nail polish	
4	Qmix	48
5	BIOPURE MTAD	49
6	Scanning electron microscope	49
7	Sputter coater	50
8	Mature biofilm formation on dentin of root canal und magnification of 2000 X	
9	Test tubes containing bacterial samples taken with paper points in 1mL of saline	
10	Colonies of bacteria	55

LIST OF DIAGRAMS

Diagram no.	Title	Page no.
1	Effect of different irrigation techniques with MTA	D 58
2	Effect of different irrigation techniques with QMIX	X 60
3	Effect of different irrigation techniques with NaOO	Cl 62
4	Effect of different irrigation solutions w Ultrasonic agitation	
5	Effect of different irrigation solutions without agitati	on 66
6	Effect of different irrigation solutions w Hydrodynamic agitation	
7	Effect of different irrigation techniques	70
8	Effect of different irrigation solutions	70