



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



HANAA ALY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



HANAA ALY

**“The effect of silver diamine fluoride on bond strength of self-etch adhesives to demineralized dentin”
(An In-vitro study)**

Thesis submitted to the Operative Dentistry Department, Faculty of Dentistry, Ain Shams University in Partial Fulfilment of The Requirements of Academic Master Degree in Operative Dentistry.

BY

Mennat Allah Omar El Ghamrawy

B.D.S.

Faculty of Dentistry,
Misr International University (2013)

Supervisors

Dr. Khaled Aly Nour

Assistant Professor of Operative Dentistry, Operative Dentistry
Department, Faculty of dentistry, Ain Shams University

Dr. Mohammed Nasser Mohamed Anwar

Lecturer of Operative Dentistry, Operative Dentistry
Department, Faculty of dentistry, Ain Shams University

Acknowledgement

I am indebted to the following important people who have supported me, not only during the course of this thesis, but throughout my Master degree and beyond.

I want to express my deepest appreciation to **Professor Dr. Khaled Aly Nour**, whose expertise and knowledge were generously shared, and his endless encouragement and guidance was of utmost importance to the completion of this thesis.

This thesis would not have been possible without the support of **Dr. Mohamed Nasser Mohamed Anwar**, who has effortlessly provided me with his time, advices and valuable comments. In every phase, his genuine apprehension and supervision shaped the structure and content of this thesis.

Dedication

I dedicate this thesis to my parents, brother and grandmother whose affection, love and inspiration laid the foundation upon which this thesis came to reality.

I would like to thank my friends: Noha Gamal and Nada Mohsen for their continuous support and love throughout the writing of this thesis; they have encouraged me a lot during this study.

I owe gratitude to my department and colleagues whose expertise and knowledge enriched this thesis and helped me on both the professional and personal levels.

List of contents

List of tables.....	i
List of figures.....	ii
Introduction.....	1
Review of literature.....	3
Aim of the study.....	41
Materials and Methods.....	42
Results.....	54
Discussion	60
Summary and conclusions	66
References	68
Arabic Summary.....	-

List of tables

Table Number	Title	Page
Table (1)	Materials (manufacturer), description, compositions and lot numbers.	42-43
Table (2)	Levels of investigation.	45
Table (3)	Interaction of variables.	45
Table (4)	Two-way ANOVA of all tested variables for the effect of dentin substrate, surface treatment and their interaction on microtensile bond strength values	55
Table (5)	Mean \pm standard deviation (MPa) of microtensile bond strength values of all tested groups.	56
Table (6)	Percentage (%) of failure patterns.	57

List of figures

Figure Number	Title	Page
Figure (1)	Flowchart of experimental design	44
Figure (2)	Specimen preparation: Pouring acrylic resin into PVC ring and then the molar is embedded half-way into the resin before complete setting	46
Figure (3)	Specimen preparation: Removal of occlusal 2 mm of the tooth using a low speed diamond saw	46-47
Figure (4)	Dentin specimens before and after creation of artificial caries	47
Figure (5)	Polarized light microscope image showing depth of demineralization in dentin after being subjected to artificial demineralizing solution	48
Figure (6): A, B, C	Application protocol of SDF in the experimental group	48-49
Figure (7)	Universal adhesive application	50
Figure (8)	Incremental application of resin composite	50

Figure Number	Title	Page
Figure (9)	Microtensile testing for the specimens	51
Figure (10)	Dentin specimen sputter-coated with gold to be observed under scanning electron microscope	52
Figure (11)	A bar graph representing the mean microtensile bond strength values \pm S.D in MPa of all tested groups.	56
Figure (12)	A bar graph representing failure modes in percentage (%)	57
Figure (13)	SEM image showing the resin-dentin interface of sound dentin without SDF pre-treatment	58
Figure (14)	SEM image showing the resin-dentin interface of sound dentin after SDF application	58
Figure (15)	SEM image showing the resin-dentin interface of demineralized dentin without SDF application	59
Figure (16)	SEM image showing the resin-dentin interface of demineralized dentin after SDF application	59

Introduction