



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**HANAA ALY**



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التوثيق الإلكتروني والميكروفيلم



# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# 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**

# **Comparing Mechanical and Physical Properties of Three Endodontic Sealers**

Thesis

*Submitted to the Endodontic Department, Faculty of Dentistry, Ain Shams  
University for Partial fulfilment of requirements  
of the master degree in Endodontics*

Submitted by

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Ain Shams University  
2022**

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Ain Shams University  
2022**



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا

عَلَّمْنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

(سورة البقرة: الآية ٣٢)





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# **Abbreviations list**

## **ADA**

American Dental Association ..... 11, 13, 21, 22, 24

## **ANSI**

American National Standards Institute ..... 11, 21, 22

## **BA**

Bioaggregate ..... 12

## **BC**

Bioceramic ..... 15, 16, 17, 19, 20, 21, 23, 24, 26, 27, 98, 100

## **BD**

Biodentine ..... 12, 13, 14

## **Ca<sup>2+</sup>**

Calcium ion ..... 79, 87, 90

## **CEJ**

Cemento-enamel junction ..... 40

## **C-factor**

Contration factor ..... 91

## **CLSM**

Confocal laser scanning microscopy ..... 22

## **CO<sub>3</sub><sup>2-</sup>**

Carbonate ion ..... 90

## **CS**

CeraSeal ..... 76, 79

## **CSBSs**

Calcium silicate based sealers..... 20, 21, 27, 79, 86, 90, 93, 94, 95,  
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**CW**

Continuous wave..... 16, 17

**DSC**

Dual-cure single component ..... 10

**DW**

Distilled water ..... 6, 8, 13, 15, 18, 20, 24, 25, 76, 81

**EDTA**

Ethylene diamine tetra-acetic acid ..... 8, 13, 26, 31, 41, 82

**EDX**

Energy dispersive x-ray..... 23

**EWT**

Extended working time ..... 3, 4, 5

**FDW**

Final dry weight ..... 38

**GIC**

Glass-ionomer cement..... 13

**GP**

Gutta-percha..... 1, 5, 7, 8, 13, 15, 17, 23, 27, 42, 43, 48, 51, 75, 83,  
96, 97, 100

**HBSS**

Hank's balanced salt solution ..... 31, 37, 76, 78, 80, 101

**IDW**

Initial dry weight ..... 37

**IRM**

Intermediate restorative material..... 13

**ISO**

International Standardization Organization ..... 13, 18, 20, 24,  
25, 34, 76, 78, 80, 81, 101, 104