

**Cyclic Fatigue Resistance, Metallurgical
Characterization, and Cleaning Effectiveness of
Three New NiTi Instruments Designs**

**A Thesis submitted to the
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Dedication

I dedicate this work to my mother for her love and guidance,

To my father for his assistance and support,

To the memory of my brother Moustafa Abdelbaki

To my little lovely sun, Mohamed, his love and beautiful face supported me

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*Few words of encouragement and support at the right times can make
a world of success.*

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مقاومة التعب الدوري ، الوصف المعدني ، وفعالية التنظيف لثلاثة
تصاميم حديثة من أدوات النيكل تيتانيوم

رسالة مقدمة الي
كلية طب الأسنان-جامعة عين شمس
كجزء من
استيفاء متطلبات الحصول على درجة الدكتوراه في علاج الجذور

مقدمة من
منال محمد عبد الباقي
بكالوريوس من جامعة ٦ أكتوبر عام ٢٠٠٨
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Abbreviations

Nickel Titanium	NiTl
Hyfex EDM	HF
One Shape:	OS
ProTaper Next:	PN
Energy Dispersive X-ray Spectroscopy	EDS or EDX
X-ray Diffraction	XRD
Scanning Electron Microscope	SEM
Vickers's Hardness Number	VHN
Length of fractured part	LFP
Controlled-Memory	CM
Rotation per minute	RPM
Nano-centimeter	N-cm

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