



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم



**HANAA ALY**



شبكة المعلومات الجامعية  
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 تغيرات



### يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**HANAA ALY**



**Effect of Curcumin Loaded Poly (lactic-co-glycolic acid) PLGA  
Nanoparticles versus Native Curcumin on the Healing of the  
Tongue Ulcer in Albino Rats  
(Histological and Immuno-histochemical Study)**

Thesis Submitted to

Faculty of Dentistry –Ain Shams University  
In partial fulfillment of the requirements  
Of Master Degree in Oral Biology

**By**

**Eman Mohamed Ibrahim Mostafa Osman**  
B.D.S. (Cairo University, 2012)

**Under supervision of**

**Ass. Prof. Dr. Dahlia Ghazy Rateb**

Assistant professor of Oral Biology  
Faculty of Dentistry  
Ain Shams University

**Co-supervisor**

**Dr. Safaa Ismail Hussein**

Lecturer of Oral Biology  
Faculty of Dentistry  
Ain Shams University

**2021**



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{ وَ قُلْ رَبِّ زِدْنِي عِلْمًا }

صدق الله العظيم

سورة طه - الآية: ١١٤



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## *Dedication*

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### **List of abbreviations**

<b>Abbreviation</b>	<b>Meaning</b>
$\alpha$ - granules	Alpha granules
°C	Celsius
Cr	Curcumin
CMC	Carboxymethylcellulose
Cr PLGA NPs	Curcumin loaded poly (lactic co-glycolic acid) nanoparticles.
C.T	Connective tissue
DAB	3,3-Diaminobenzidine
ECM	Extra cellular matrix
FDA	Food and drug administration
Fig.	Figure
gm	Grams
GRAS	Generally regarded as safe
H&E	Hematoxylin and Eosin stain.
IFN- $\gamma$	Interferon-gamma
Il-1	Interleukin-1
Il-6	Interleukin-6
Kg	Kilogram
L.M	Light microscope
mm	Millimeters
MMP-1	Matrix Metalloproteinase-1
MMP-3	Matrix Metalloproteinase-3

MMP-9	Matrix Metalloproteinase-9
M.T	Masson's Trichrome stain
NCr	Native curcumin
NF-KB	Nuclear factor-kappa-B
NPs	Nanoparticles
P	Probability
PBS	Phosphate buffered saline solution
PLGA NPs	Poly (lactic co-glycolic acid) nanoparticles
RBCs	Red blood cells
ROS	Reactive oxygen species
SD	Standard deviation
S/O/W	Solid in oil in water
SPSS	Statistical Package for Social Science
TGF- $\beta$	Transforming Growth Factor-B antibody.
TNF- $\alpha$	Tumor necrosis factor -alpha
VEGF	Vascular endothelial growth factor
Vs	Versus
W	Watt