



Ain Shams University
Faculty of Science
Biochemistry Department



Evaluation of the Antitumor Activity of Platinum Nanoparticles in the Treatment of Hepatocellular Carcinoma Induced in Rats

A Thesis

Submitted for the Ph.D. Degree of Science in Biochemistry

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Approval Sheet

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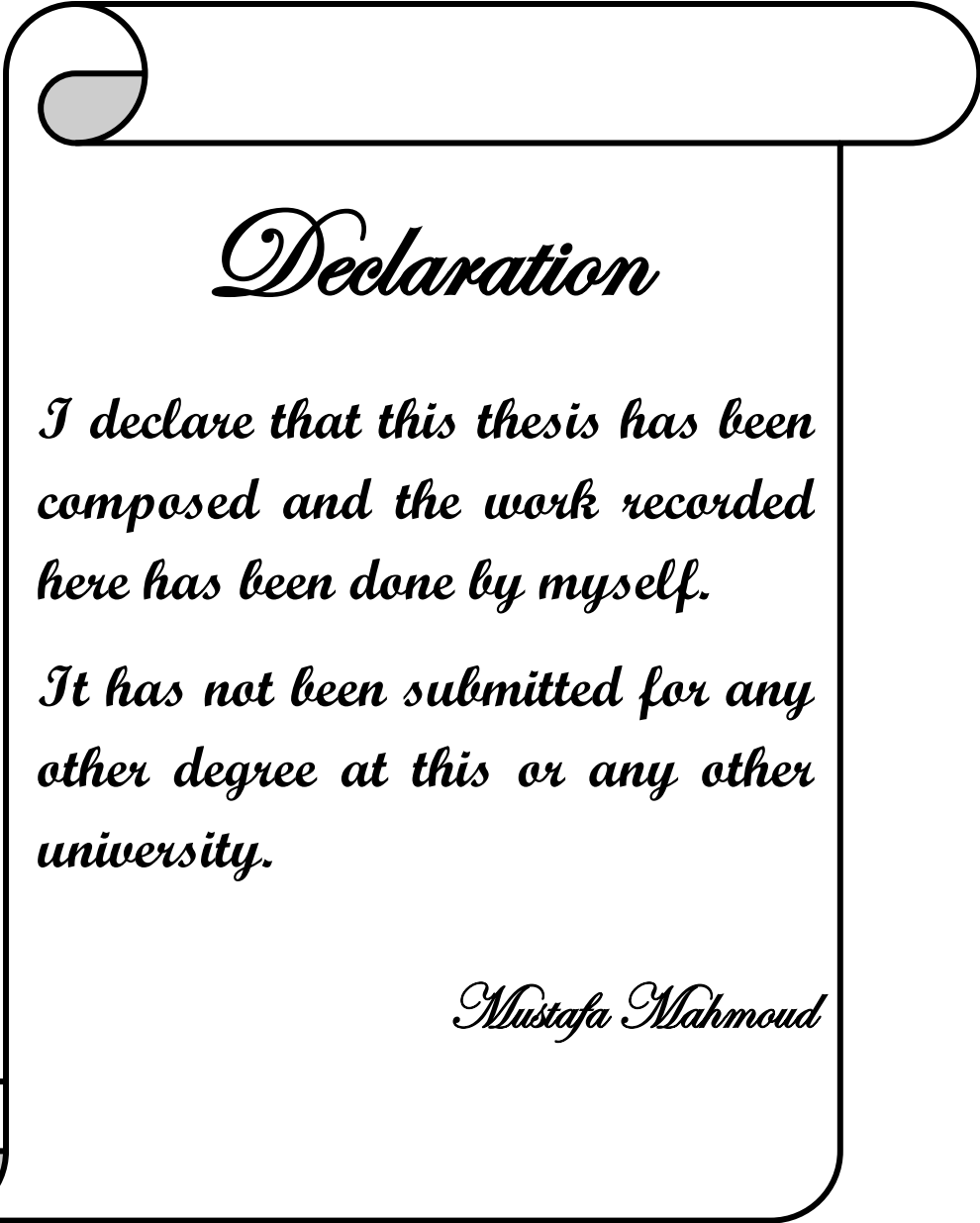
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Declaration

I declare that this thesis has been composed and the work recorded here has been done by myself.

It has not been submitted for any other degree at this or any other university.

Mustafa Mahmoud

Dedication

In the name of Allah most gracious most merciful, Praise be to God, the Cherisher and Sustainer of the worlds.

I dedicate this thesis to my mother soul and to my family. A special feeling of gratitude to my mother who passed away and my father whose words of encouragement and push for tenacity ring in my ears, thank you very much for your love, endless support and encouragement.

I also dedicate this thesis to many friends and colleagues who supported me throughout the process. I will always appreciate what they have done for me throughout the entire PhD thesis.

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LIST OF ABBREVIATIONS

AFP	Alpha-fetoprotein
ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
BCL-2	B-cell lymphoma 2
Cap-3	Caspase-3
cDNA	Complementary DNA
Ct	Threshold cycle
Cyt c	Cytochrome c
dATP	Deoxyadenosine triphosphate
dCTP	Deoxycytidine triphosphate
DEN	Diethylnitrosamine
DEPC	Diethyl pyrocarbonate
dGTP	Deoxyguanosine triphosphate
dTTP	Deoxythymidine triphosphate
ELISA	Enzyme-linked immunosorbent assay
FTIR	Fourier transform infrared spectroscopy
G1 phase	Gap 1 phase
G2 phase	Gap 2 phase
GAPDH	Glyceraldehyde 3-phosphate dehydrogenase
GSH	Reduced glutathione content
Gy	Gray
HBV	Hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C virus