

**Effect of Zinc Supplementation on
Glucose Homeostasis in Patients with
 β -Thalassemia Major Complicated with
Diabetes Mellitus**

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لَسْبَدَانِكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

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List of Abbreviations

Abb.	Full term
AGEs.....	Advanced Glycation end Products
AHSP.....	α -hemoglobin-Stabilizing Protein
AKT(PKB).....	Protein kinase B
BM.....	Bone marrow
BMD	Bone mineral density
BMI.....	Body mass index
B-TM.....	Beta-thalassemia major
B-TI.....	Beta-thalassemia intermedia
BW	Body weight
CVD	Cardiovascular disease
D.bil	Direct bilirubin
DEXA.....	Dual Energy X-ray Absorptiometry
DFP.....	Deferiprone
DFX.....	Deferasirox
DM.....	Diabetes mellitus
DNA.....	Deoxy Nucleic Acid
EC.....	Endothelial cell
ECG.....	Electrocardiogram
ECHO	Echocardiography
EPO	Erythropoietin
ER	Endoplasmic Reticulum
Fig.....	Figure
GDF15.....	Growth differentiation factor 15
γ GT.....	Gamma-glutamyl transpeptidase
GLUT.....	Glucose transporter
GSH.....	Glutathione
Hb	Hemoglobin
HbA.....	Adult Hemoglobin

List of Abbreviations (cont...)

Abb.	Full term
HbF	Fetal Hemoglobin
HBV	Hepatitis B virus
HCV.....	Hepatitis C virus
HFD.....	High Fat Diet
HLA.....	Human leukocyte antigen
HO-1.....	Heme oxygenase-1
HOMA-IR.....	Homeostasis Model Assessment Insulin Resistance
HPLC.....	high performance liquid chromatography
HU.....	Hydroxyurea
IFG.....	Impaired Fasting Glucose
IGT.....	Impaired Glucose Tolerance
IL-6.....	Interleukin 6
IRAP.....	Insulin-responsive aminopeptidase
Kb.....	Kilo Bite
MCH	Mean corpuscular Hb
MCP-1.....	Macrophage Chemoattractant Protein 1
MCV	Mean corpuscular volume
MDA.....	Malondialdehyde
MTs	Metallothionein
MUFA.....	Monounsaturated fatty acid
NADPH-oxidase.....	Nicotinamide Adenine Dinucleotide phosphate-oxidase
NF- k B.....	Nuclear factor -KB
Nrf2.....	Nuclear factor erythroid 2-related factor 2
OSI.....	Oxidative Stress index
PPAR	Peroxisome proliferator-activated receptor (NR1c3)
PRDX2.....	Peroxiredoxin 1