

THE IMPACT OF TRACE ELEMENTS DISTURBANCES ON THYROID FUNCTIONS

Essay

**Submitted for partial fulfillment of Master Degree
in Clinical and Chemical Pathology**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

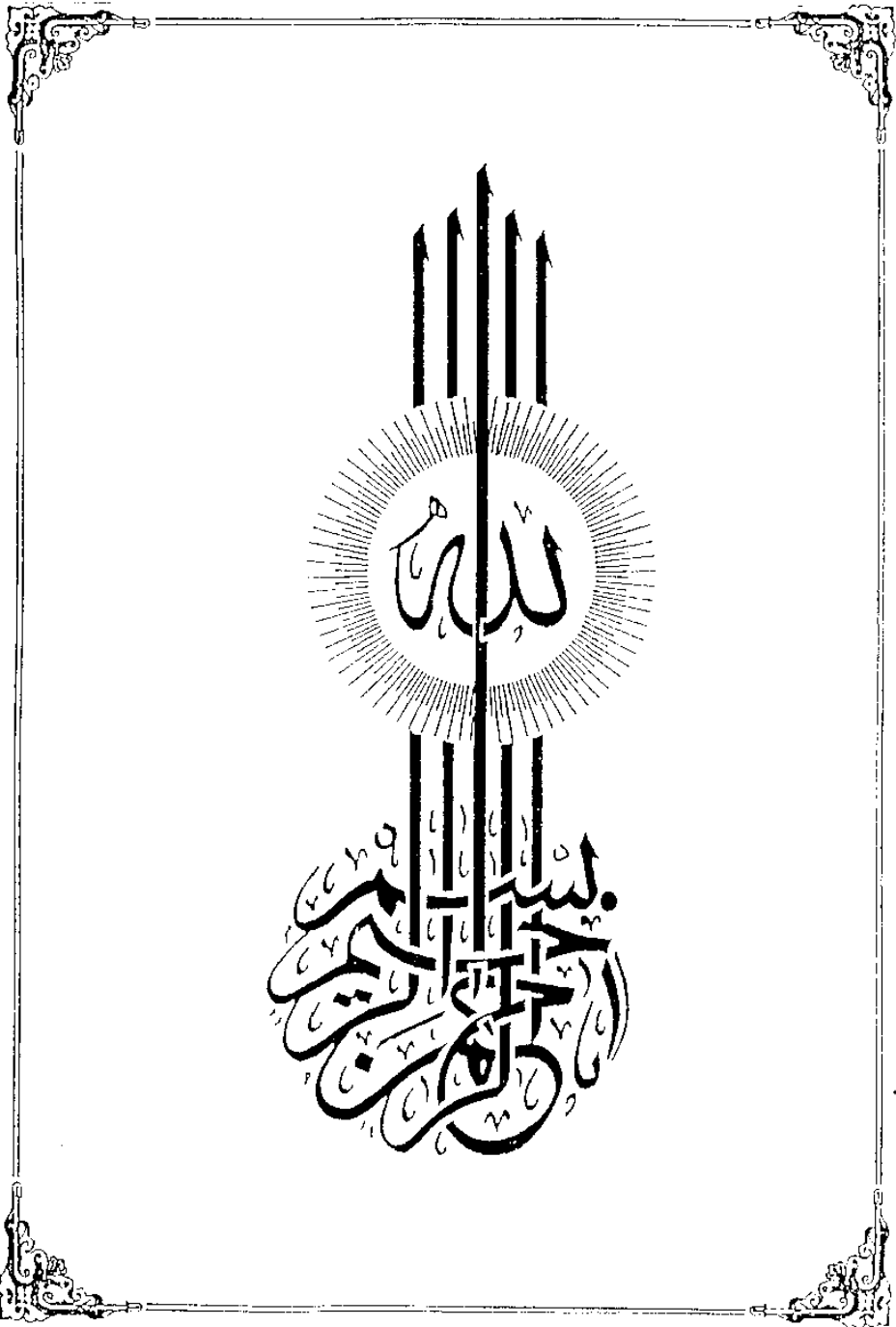
اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ

خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ

اقْرَأْ وَرَبُّكَ الْأَكْبَرُ الَّذِي عَلَّمَ بِالْقَلَمِ

عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ

المثنى، ١-٥



*TO MY PARENTS
MY HUSBAND
AND MY SON*

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LIST OF ABBREVIATIONS

-AAS:	Atomic Absorption Spectrophotometry.
-ASV:	Anodic Stripping Voltammetry.
-CU-SOD:	Copper Superoxide Dismutase.
-DIT:	Diiodotyrosine.
-ES:	Emission Spectroscopy.
-FIA:	Fluorescence Immunoassay.
-FT3:	Free Triiodothyronine.
-FTI:	Free Throxine Index.
-GSH-Px:	Glutathione Peroxidase Enzyme.
-H ₂ O ₂ :	Hydrogen Peroxide.
-I:	Iodine.
-I-D:	Iodothyronine Deiodinase.
-IEMA:	Immuno-enzymometric Assay.
-ILMA:	Immuno-luminometric Assay.
-IMAs:	Immunometric Assays.
-IRMA:	Immuno-radiometric Assay.
-L:	Liter.
-Mg:	Milligram.
-MIT:	Monoiodotyrosine.
-MNS:	Mass Spectrometry.
-NAA:	Neutron Activation Analysis.
-nm:	Nanometer.
-RAIU:	Radio Active Iodine Uptake.

----- List of Abbreviations -----

-RBC:	Red Blood cells.
-RIA:	Radio Immuno Assay.
-RT3:	Reverse Triiodothyronine.
-T4:	Thyroxine.
-T3:	Triiodothyronine.
-TBG:	Thyroxine Binding Globulin.
-THBR:	Thyroid Hormone Binding Ratio.
-TRH:	Thyrotropin Releasing Hormone.
-TR-IFMA:	Time Resolved Immunofluorometric Assay.
-TSH:	Thyroid Stimulating Hormone.
-U:	Unit.
-ug:	Microgram.
-XRF:	X-Ray Fluorescence Spectrometry.

----- List of Abbreviations -----

INTRODUCTION AND AIM OF THE WORK

INTRODUCTION

INTRODUCTION:

Elements are the enormous numbers of substances found on earth. The term element is given to elementary chemical substances that can not be further decomposed to simpler substances by ordinary chemical means. Some of these elements are the major elements such as carbon, hydrogen and oxygen which comprises approximately 95% of the substances of the body. In addition there are other elements which are absolutely vital for growth and survival in man and present in very minute amounts. These elements can be divided into three classes (Scott, 1972):

1- Structural elements: a clear example is calcium and phosphorus which are required in major part for the formation of the skeletal structures of the body and therefore these elements are needed in large amounts.

2- Elements functioning mainly to maintain homeostasis: as sodium, potassium and chloride function to maintain homeostasis such as necessary osmotic relationships and optimum pH through various parts of the body. These cations and anions therefore are required in fairly large amounts.