TRACE ELEMENTS IN CONVULSIVE DISORDERS

THESIS

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BY

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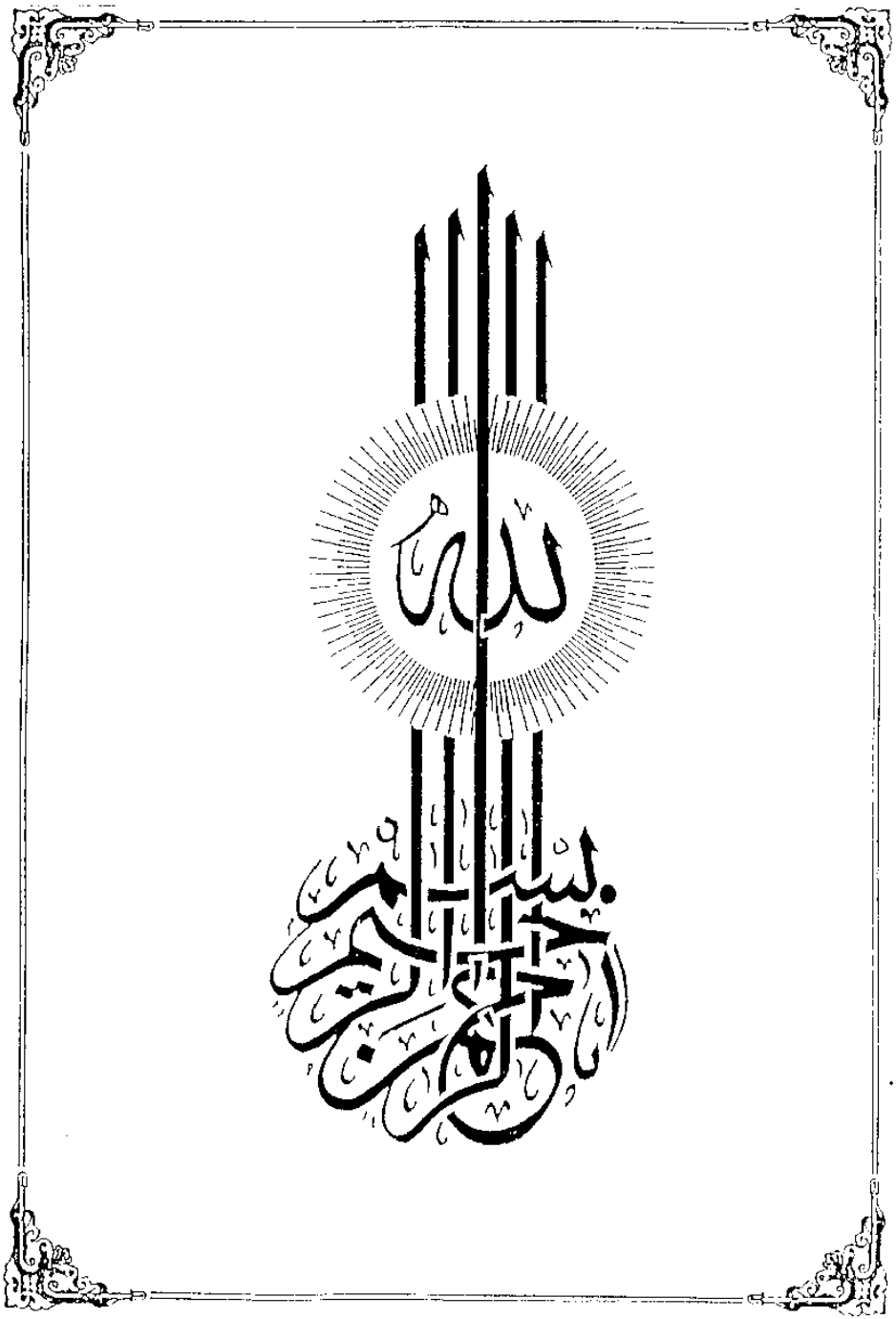
Dedication...

To the soul of my great teacher

Professor Dr. Mahmoud Essawy

whom I'll always remember.



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Nahla Moustafa Heshmat

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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
Ca	Calcium
CaBP	Calcium binding protein
CNS	Central nervous system
CSF	Cerebrospinal fluid
Cu	Copper
25 (OH) D	25 hydroxy cholecalciferol
1, 25 $(OH)_2$ D	1,25 dihydroxy cholecalciferol
EAAs	Excitatory amino acids
EEG	Electroencephalogram
EIA	Enzyme immunoassay
GABA	Gamma-aminobutyric acid
GAD	Glutamic acid decarboxylase
K	Potassium
LEM	Leucocyte endogenous mediator
LMNL	Lower motor neuron lesion
Mg	Magnesium
Mn	Manganese
n	Number of subjects
Na	Sodium
Na-K-ATPase	Sodium-potassium-adenosine triphosphatase
PLP	Pyridoxal phosphate
S-Cu	Serum copper
SD	Standard deviation
S-Mg	Serum magnesium
S-Mn	Serum manganese
S-Zn	Serum zinc
UMNL	Upper motor neuron lesion
Zn	Zinc

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INTRODUCTION
AND AIM OF THE WORK

Introduction

The minerals required for physiologic functions may be divided into 2 groups:

— Macrominerals which are required in amounts greater than 100 mg/day. They are calcium, chloride, magnesium, phosphorus, potassium and sodium.

— Microminerals (trace elements) which are required in amounts less than 100 mg/day. They are chromium, copper, iodine, iron, manganese, molybdenum, selenium, zinc, cobalt. Silicon, vanadium, nickel, arsenic, fluoride, and tin have been shown to be essential in various species and may be required in humans (*Mayes*, 1988).

The possible involvement of trace elements in convulsive disorders has been given more attention in recent years (*Pei and Koyama*, 1986). Trace elements which have been involved in convulsive disorders are: Zinc, copper (*Taylor and Ghose*, 1986), manganese (*Carl et al.*, 1986), selenium (*Wark et al.*, 1984) and cobalt (*Craig and Colasanti*, 1986) and magnesium (*Tolde et al.*, 1987).

Aim of the Work

Our aim is to evaluate the state of zinc, copper, magnesium and manganese in different convulsive disorders affecting children, and to evaluate the effect of anticonvulsant therapy on these elements.

Review of Literature