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BIOCHEMICAL AND BIOLOGICAL REACTIONS OF MUTAGENIC AGENTS ON FRESH WATER SNAILS, « INTERMEDIATE HOSTS OF SCHISTOSOMIASIS »

574.232
A.Z

Thesis Submitted
To
Faculty of Science
Ain Shams University

In Partial Fulfilment of the
Requirements for the Degree of
MASTER OF SCIENCE

By
Abd El Hamid Zaki Abd El Hamid

18925

Medicinal Chemistry Laboratory
National Research Centre
Cairo

1984

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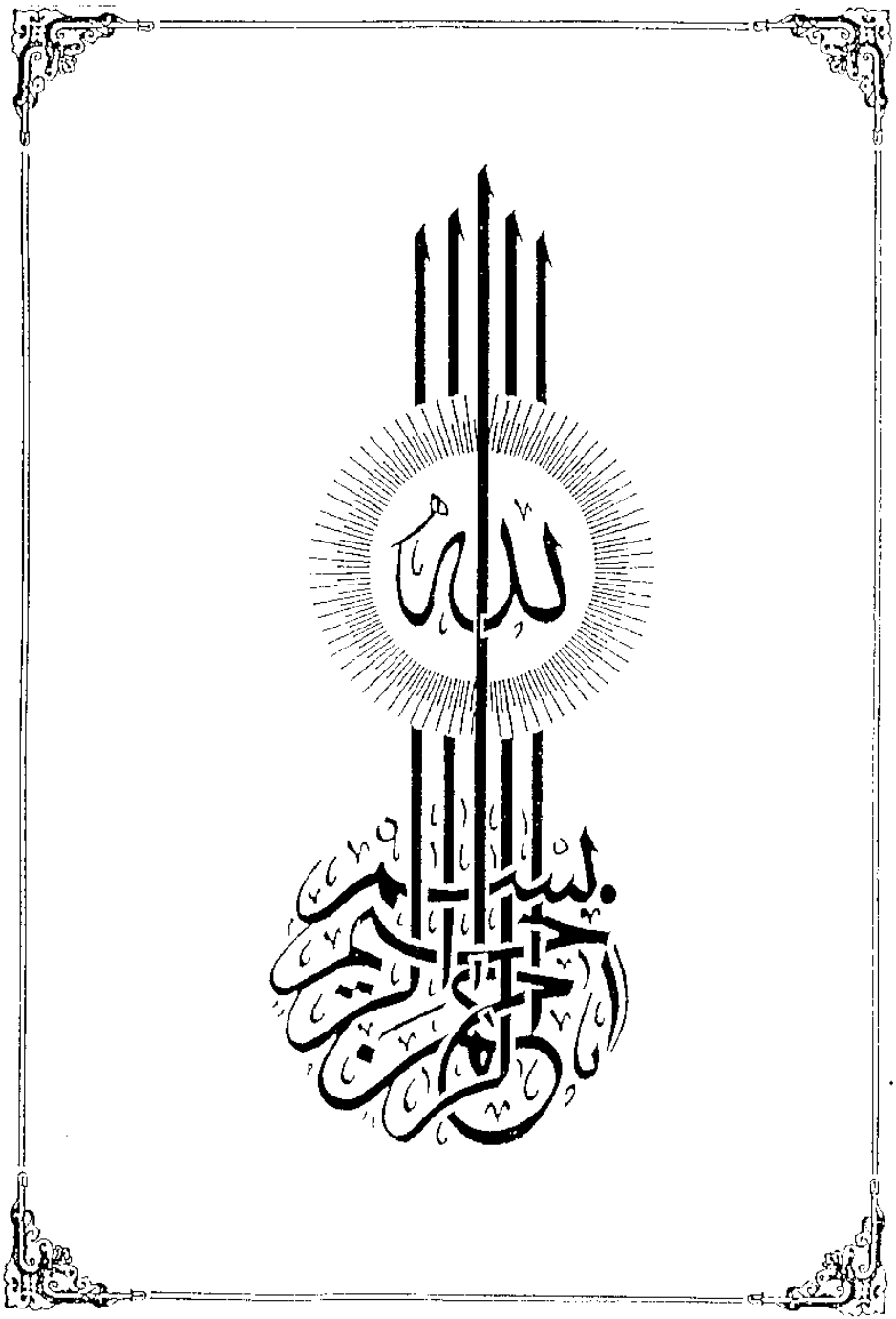

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This thesis has not been submitted for a degree at this or any other University.

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ACKNOWLEDGEMENT

The author would like to express his deep thanks and gratitude to Professor Dr. IBRAHIM RAOUF SHIMI, Professor of Biochemistry, Faculty of Science, Ain Shams University, for his valuable supervision and guidance.

The author is deeply grateful to Professor Dr. NADIA MOHAMED ABD ALLAH, Professor of Biochemistry, Faculty of Science, Ain Shams University, for her keen interest in this work.

The deepest thanks is due to Professor Dr. IBRAHIM MOHAMED NABIH, Head of Medicinal Chemistry Laboratory, National Research Centre, for supervising this work and for his valuable guidance.

He also wishes to record his thanks to all colleagues for their kind cooperation and moral support.

Thanks are expressed to the National Research Centre, for the award of a scholarship and facilities provided.

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ABREVIATIONS USED

r.p.m.	Round per minute
nm	Nanometer
ug	Microgram
ul	Microlitre
ml	Millilitre
M	Molar
N	Normal
DNA	Deoxyribonucleic acid
G	Guanine
A	Adenine
T	Thymine
C	Cytosine
$\widehat{T\ T}$	Thymine dimer

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$\widehat{C\ C}$	Cytosine dimer
$\widehat{C\ T}$	Cytosine - thymine dimer
7 - eth G.	7 - ethyl guanine
U.V.	Ultraviolet light
EDTA	Ethylene diamine tetraacetic acid
O.D.	Optical Density
Comp. I(M.D.)	Lucanthone (Miracil D)
Comp. II	Hycanthone
Comp.III	1(2-diethyl aminoethyl amino) - 3, 4, 5, 6 - tetrahydrobenz [c] - thiaxanthen - 12 - one
Comp. IV	6 - (2 - diethylamino) - 1, 2, 3, 4, - tetrahydrobenz [a] thiaxanthen - 12 - one
A°	Angstrom
γ	Gamma (Ionizing radiation).
e.v.	Electron volt
5-F.U.	5 - Fluorouracil

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CONTENTS

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Preface

In Schistosomiasis which is a parasitic disease that infects man in massive numbers of population in vast areas of the world, the relationship between the causative organism and its intermediate host is highly specific and is genetically controlled.

In this work, the effect of chemical and physical mutagens on the chemical nature of deoxyribonucleic acid (DNA), isolated from two types of fresh water snails namely Biomphalaria alexandrina and Bulinus truncatus, were studied. Both types act as specific intermediate hosts for Schistosoma mansoni and Schistosoma haematobium respectively.

Physical mutation was carried out through ultraviolet irradiation. Effect of ultraviolet irradiation on the content and on base composition of DNA in both types of snails were reported.

For the chemical treatment of both types of snails, Cyclophosphamide was used as an alkylating agent,

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5-Fluorouracil as a base analogue and thiaxanthone derivatives (I,II, III and IV) were also used as a chemical mutagens. The effect of these chemicals on the content and on base composition of DNA in both types of snails were studied.

The effect of physical and chemical mutagens on the susceptibility of the snails for infection were also studied.

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Chapter I

Introduction

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