



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



SALWA AKL

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأقراص المدمجة قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



SALWA AKL



بعض الوثائق الأصلية تالفة



SALWA AKL



بالرسالة صفحات

لم ترد بالأصل



SALWA AKL

**CYTOGENETIC STUDIES ON THE MUTAGENIC
POTENTIALITY OF SOME CHEMICALS USING
DIFFERENT LIVING SYSTEMS**

BY

B17088

Nabil Said Awad Ibrahim

B.Sc. Agric. (Genetics), Ain Shams Univ., (1990)

A thesis submitted in partial fulfillment
of

the requirements for the degree of
MASTER OF SCIENCES

in

**Agriculture
(Genetics)**

*Department of Genetics
Faculty of Agriculture
Ain Shams University
1998*

B

1771A

7

(1)

1875-1876

APPROVAL SHEET

CYTOGENETIC STUDIES ON THE MUTAGENIC POTENTIALITY OF SOME CHEMICALS USING DIFFERENT LIVING SYSTEMS

BY

Nabil Said Awad Ibrahim

B.Sc. Agric. (Genetics) , Ain Shams Univ., (1990)

This thesis for M. Sc. degree has been approved by :

Prof. Dr. A.M. Hasan ... *A.M. Hasan*

Prof. of Genetics , Faculty of Agric., Zagazig Univ.

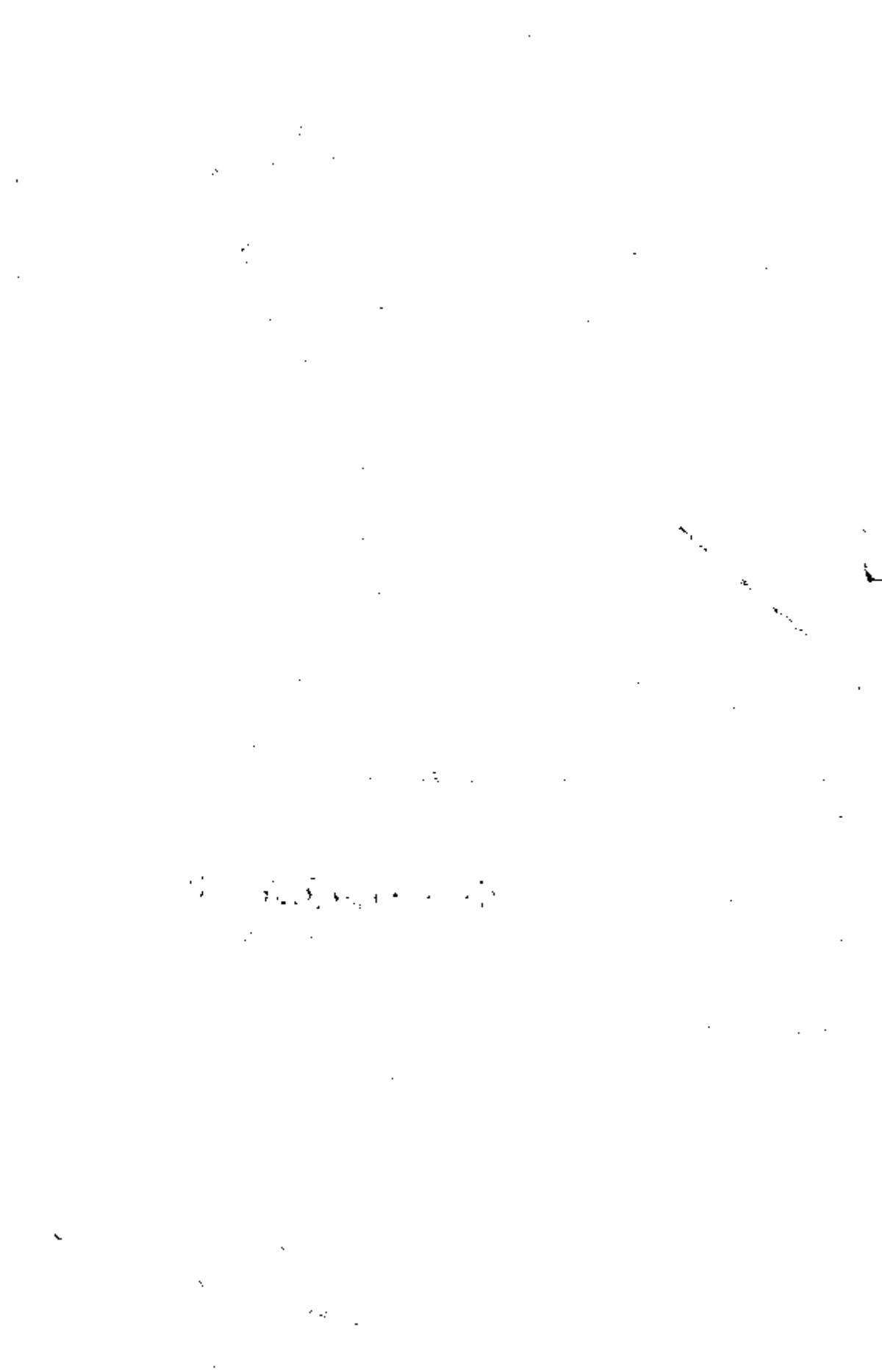
Prof. Dr. A. Z. E. Abdelsalam ... *A.Z.E. Abdelsalam*

Prof. of Genetics and head of Genetics Dept. , Faculty of Agric., Ain Shams Univ.

Prof. Dr. A. A. Awad ... *A.A. Awad*

Prof. of Genetics , Faculty of Agric., Ain Shams Univ.

Date of examination : *11/6/1998*



**CYTOGENETIC STUDIES ON THE MUTAGENIC
POTENTIALITY OF SOME CHEMICALS USING
DIFFERENT LIVING SYSTEMS**

BY

Nabil Said Awad Ibrahim

B.Sc. Agric. (Genetics), Ain Shams Univ., (1990)

Under the supervision of :

Prof. Dr. A. A. Awad

Prof. of Genetics, Faculty of Agric., Ain Shams Univ.

Dr. F. M.El - Domyati

Lecturer of Genetics, Faculty of Agric., Ain Shams Univ.

Prof. Dr. Wagida A. Anwar

Prof. of Occupational Medicine, Faculty of Medicine, Ain Shams Univ.

1

0

1/2

0.5

1/2

1/2

1/2

1/2

1/2

ABSTRACT

NABIL SAID AWAD .Cytogenetic studies on the mutagenic potentiality of some chemicals using different living systems . Unpublished Master of Science ,Department of Genetics , 1998, Faculty of agriculture , Ain Shams University.

The aim of this study is to investigate the mutagenic effect of some Carbamate pesticides using different living systems .

Two carbamate pesticides aldicarb and marshal were tested for their ability for inducing both aneuploidy and chromosomal aberrations in germ line cells of *Drosophila* males *in vivo* also for inducing chromosomal aberrations in both rats bone marrow cells

in vivo and human peripheral lymphocyte cells *in vitro* . The two pesticides showed an increase in aneuploidy and chromosomal aberration frequencies in germ- line cells of *Drosophila* .

Also the two pesticides induced an increase in the number of chromosomal aberrations in rats bone marrow cells and human peripheral lymphocytes compared with the control.

Key Words : Carbamate pesticides , Mutagenic , Aneuploidy , Chromosomal aberration , *Drosophila* , Rats , Bone marrow , Human , Lymphocytes

CONTENTS

I Introduction	Page
II Review of literature	1
II.1. Mutagenic effect of pesticides	3
II. 2. Aneuploidy	3
II.3. Chromosomal aberrations	4
II. 4. Mutagenic effect of carbamate pesticides	7
II.4. 1. Mutagenic effect of carbamate compound on <i>Drosophila</i>	11
II.4. 2. Mutagenic effect of carbamate compounds on Rodents	11
II.4. 3. Mutagenic effect of carbamate compounds on human lymphocyte cells	12
III Materials and Methods	15
III. 1 <i>Drosophila</i> experiments	19
III.1.1. <i>Drosophila</i> strain	19
III. 1.2. Tested Chemicals	20
III. 1. 3. Preparation of tested Chemicals	21
III. 1.4. Larvae Collection	21
III. 1.5. Treatment	21
III. 1. 6. Mutagenicity screening	22
III. 2. Rats bone marrow experiments	22
III. 2. 1. Rat strain	22
III. 2. 2. The used chemicals	23
III. 2. 2. 1. Colcemid	23
III. 2.2.2. KCl solution	23
III. 2. 2. 3. Giemsa stain	23
III. 2. 3. Treatments	23
III. 2. 4. Harvesting, Fixing and slid preparation	24
III. 2. 5. Staining	24
III. 2. 6. Mutagenicity screening	24
III. 3. Human lymphocytes experiments	25
III. 3. 1. Human blood samples	25
III. 3. 2. Preparation of complete culture medium	25
III. 3. 3. Treatments and cultivation	26
III. 3. 4. Harvesting, Fixation and slid preparation	26

III. 3. 5. Staining	27
III. 3. 6. Mutagenicity Screening	27
IV. Results And Discussion	28
IV. 1. Drosophila Experiments	28
IV. 1. 1. Aldicarb experiment	29
IV. 1. 2. Marshal experiment	34
IV. 2. Rats bone marrow experiments	39
IV. 2. 1. Aldicarb experiment	39
IV. 2. 2. Marshal Experiment	43
IV. 3. Human lymphocytes cultures experiments in vitro	46
IV. 3. 1. Aldicarb experiments	47
IV. 3. 2. Marshal experiments	48
V. English summary	60
VI. Literature cited	62
VII. Arabic Summary	

LIST of TABLES

	Page
Table (1) Investigations of aldicarb and marshal pesticides	20
Table (2) : Numbers and percentages of male and female mutants of ATE strain of <i>Drosophila</i> for four broods after treatment with (9mg/ml) of aldicarb compard with the negative control	32
Table (3) : Numbers and percentages of male and female mutants of ATE strain of <i>Drosophila</i> for four broods after treatment with (30mg/ml) of marshal compard with the negative control	35
Table (4) :Numbers and percentages of total chromosomal aberration types in rat bone marrow after treatment with two deferent concentrations of aldicarb as compared with the negative and positive control	41
Table (5): Numbers and percentages of total chromosomal aberration types in rat bone marrow after treatment with two deferent concentrations of marshal a carbamate pesticide as compared with the negative and positive control	44
Table (6) : Numbers and percentages and types of chromosomal aberrations following exposure to three different concentrations of Aldicarb as compared to the negative and positive control in human lymphocyte cells ..	49
Table (7) : Numbers and percentages and types of chromosomal aberrations following exposure to three different concentrations of marshal as compared to the negative and positive control in human lymphocyte cells	52