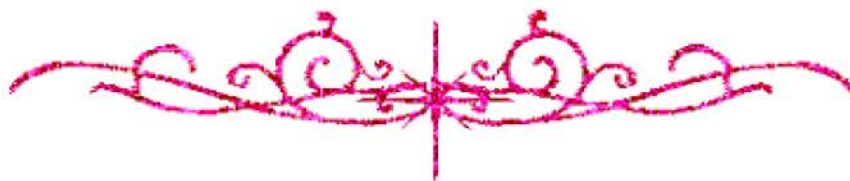


بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

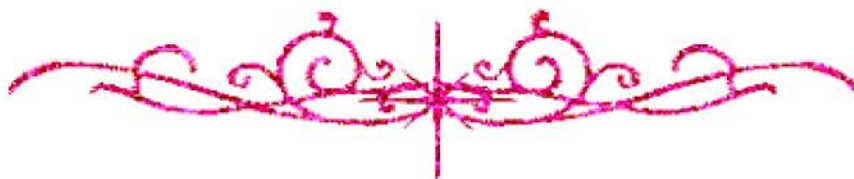
قسم

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



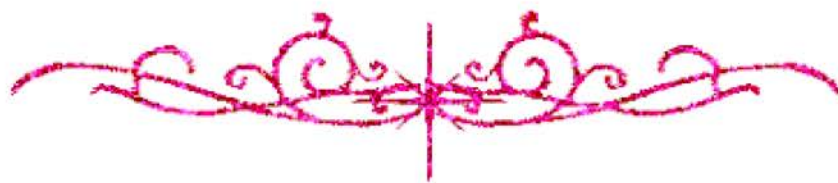
يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



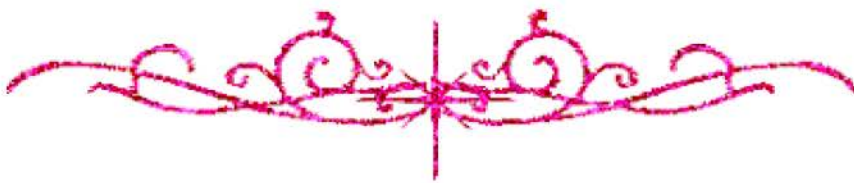


بالرسالة صفحات
لم ترد بالأصل





بعض الوثائق الأصلية تالفة



B11V19

POTENTIAL MUTAGENECITY OF FORMALDEHYDE ADDED TO MILK

THESIS

Submitted in Partial fulfillment for the Master Degree.

In

Clinical Toxicology

By

Abeer Adel-^EAl- Menshawy
(*M. B., B. Ch Tanta University*)

Supervisors

Dr.

Inas Hassan El-Mehallawi

Ass. Prof. of Forensic

Medicine and Clinical Toxicology

Faculty of Medicine

Tanta University

Dr.

Eman Moustafa Soliman

Lecturer of Forensic

Medicine and Clinical Toxicology

Faculty of Medicine

Tanta University

Dr.

Sahar Fathi Hammoudah

Lecturer of Clinical and

Chemical Pathology

Faculty of Medicine

Tanta University

**FACULTY OF MEDICINE
TANTA UNIVERSITY**

1999



قَالُوا سُبْحَانَكَ

لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللَّهُ الْعَظِيمُ

(البقرة ٣٢)

*To My Parents,
my family
and
mother in law.*

ACKNOWLEDGEMENT

First and foremost thanks to **ALLAH** whose magnificent help was the main factor in accomplishing this research work.

I am greatly indebted to **Dr. Mohammed E.M. Zowail** Assist. Prof. of cytogenetics, Faculty of science, Benha University for his sincere training effort in cytogenetics that was essential to accomplish this work.

I would like to express my deepest regards, gratitude and appreciation to **Prof. Dr. Mona Heshmat** Professor and head of Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, Tanta University, for her generous and kind help and her continuous valuable supervision.

I would like to express my deepest gratitude and appreciation to **Dr. Inas Hassan El-Mehallawi** Assistant Professor of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Tanta University, I am very grateful to her for devoting a great of her precious time for supervising my work. I shall always remember her marvelous support, encouragement and guidance to me.

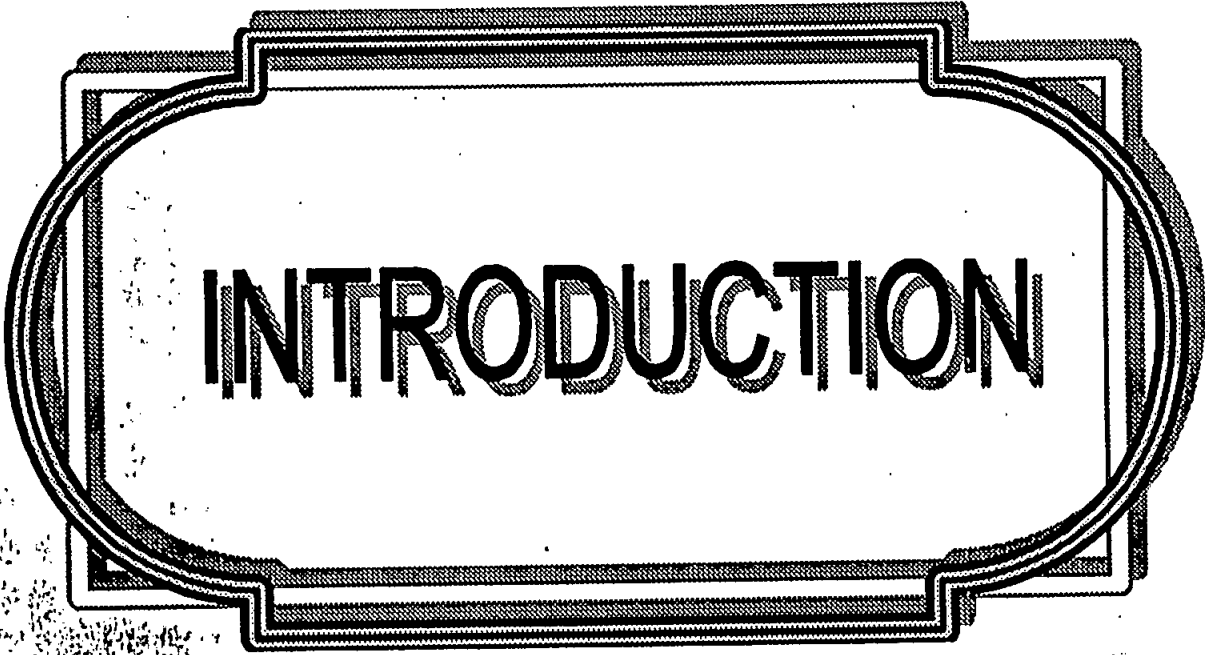
I wish to express my deep thanks to **Dr. Eman Moustafa Soliman** Lecturer of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Tanta University, for her sincere cooperation, advice, and her generous assistance which helped me to accomplish this study.

I owe special gratitude to **Dr. Sahar Fathi Hammoudah** Lecturer of Clinical & Chemical Pathology, Faculty of Medicine, Tanta University, for her encouragement

Finally thanks to all members of Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, Tanta University, for their kind support throughout the work.

CONTENTS

INTRODUCTION	1
AIM OF THE WORK	2
REVIEW OF LITERATURE	3
Sources and levels of FA	4
Uses of FA	11
Toxicity of FA	15
Genetic toxicology	24
MATERIAL & METHODS	38
RESULTS	45
DISCUSSION	82
SUMMARY AND CONCLUSION	92
REFERENCES	96
ARABIC SUMMARY	



INTRODUCTION

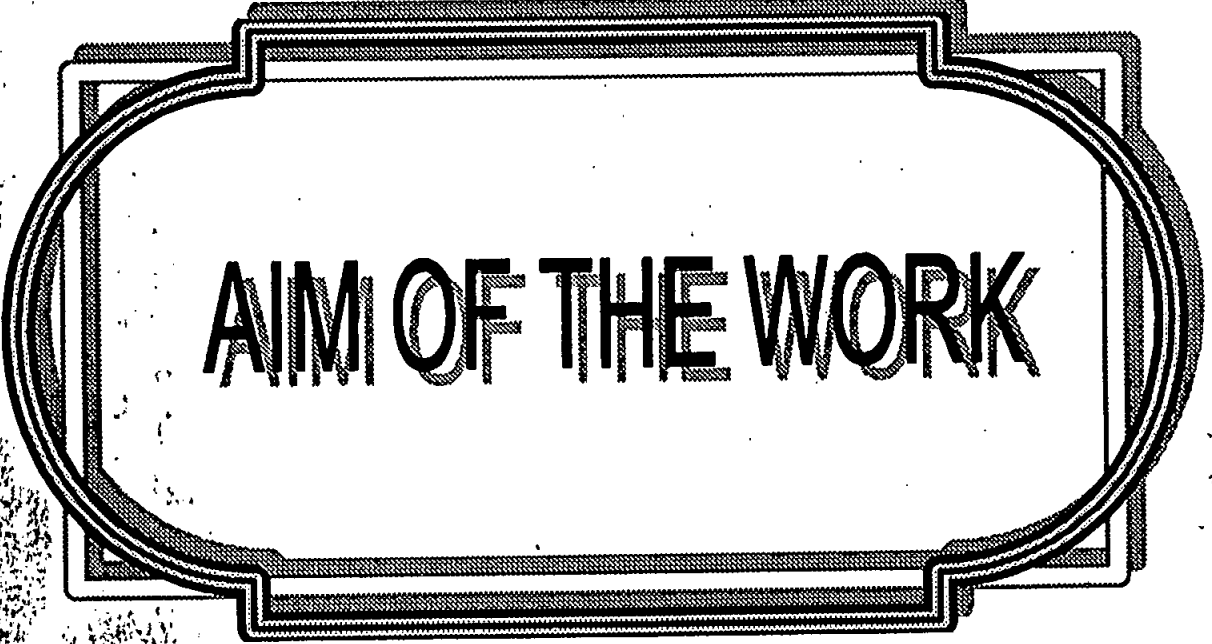
INTRODUCTION

There is a nearly endless list of chemicals and biological agents that can be injurious when inhaled, ingested or absorbed through the skin. Some drugs produce injury in the course of therapy, while others are introduced accidentally or intentionally into the body. The use of formaldehyde as a food preservative may be an example of the later group (Lipscomb, 1992).

Formalin as a powerful preservative, is not permitted to be added directly. However, any food may contain up to 5mg/kg formaldehyde derived from any wet strength wrapping containing formaldehyde based resin, or of plastic food containers made from formaldehyde (Egan et al., 1981 and Salem et al., 1994).

Although formalin may be hazardous to human health, many food handlers in Egypt illegally add a small amount of the chemical to milk especially in summer, to improve its keeping quality (Atherton and Neulander, 1977, El Gendy et al., 1980 and Salem et al., 1994).

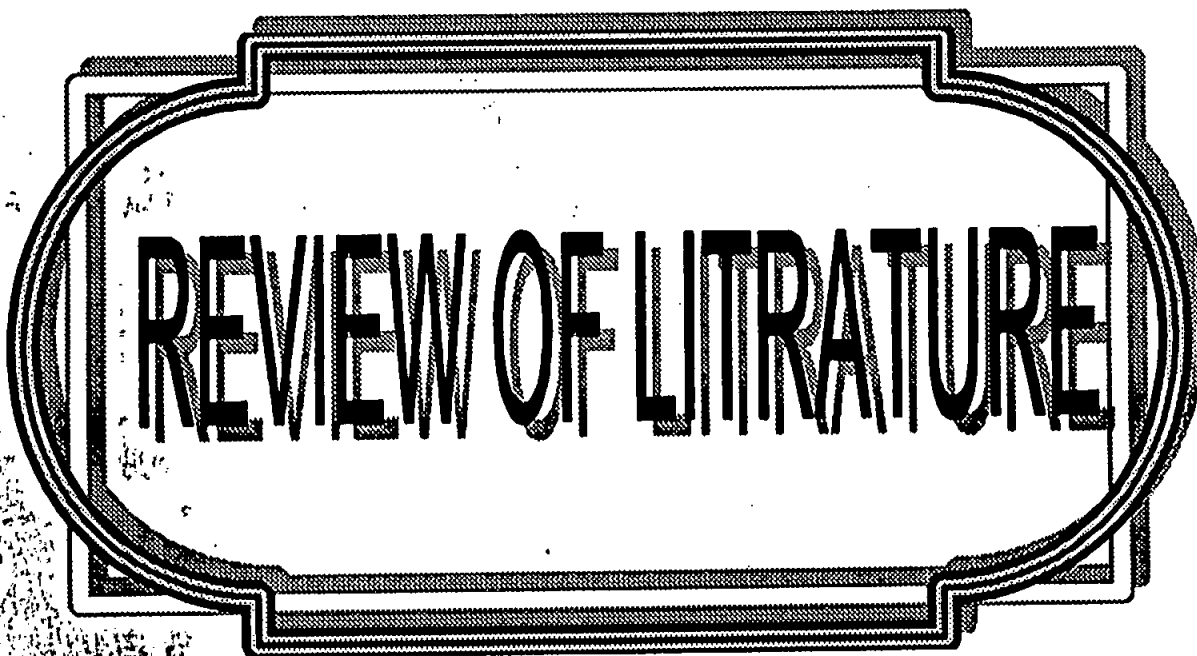
Mutagenic effect of formaldehyde has been investigated intensively with conflicting results (Litton, 1982, Brusick, 1983 and IARC, 1987).



AIM OF THE WORK

AIM OF THE WORK

The aim of this study is to assess the cytogenetic effect of formaldehyde (chronic ingestion) on bone marrow cells of rats.



REVIEW OF LITRATURE