سامية محمد مصطفى



شبكة المعلومات الحامعية

بسم الله الرحمن الرحيم



-Caro-

سامية محمد مصطفي



شبكة العلومات الحامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





سامية محمد مصطفى

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسو

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



يجب أن

تحفظ هذه الأقراص المدمجة يعيدا عن الغيار



سامية محمد مصطفي



شبكة المعلومات الجامعية



المسلمة عين شعور المسلمة عين شعور المسلمة عين شعور المسلمة عين شعور المسلمة ا

سامية محمد مصطفى

شبكة المعلومات الحامعية



بالرسالة صفحات لم ترد بالأصل





APPROVAL SHEET

This is to approve that the dissertation presented by **MOHAMED EL-SAID ABD EL-HAMID ABD EL-AZIZ NASEF** to Zagazig University entitled "HEAVY METAL RESIDUES IN MILK AND SOME DAIRY PRODUCTS IN DAMIETTA GOVERNORATE AND THEIR PUBLIC HEALTH SIGNIFICANCE" for the degree of Ph. D. of Vet. Med. Sc. has been approved by the examining committee:

Dr. MOUSTAFA KHALIL MOUSTAFA

Professor of Milk Hygiene and Head of Food Control Department Faculty of Vet. Medicine Assuit University

Dr. MAGDY SHARAF EL-SAYED

Professor of Milk Hygiene Food Control Department Faculty of Vet. Medicine Zagazig University

Dr. IBRAHIM HASSAN AMER

Professor of Milk Hygiene Food Control Department Faculty of Vet. Medicine Zagazig University (Supervisor)

Dr. MAHDY ABD EL-GAWAD ABD EL-KADER

Professor of Animal, Poultry and Environment Hygiene Dept. of Animal Hyg. & Husbandry Faculty of Vet. Medicine Zagazig University (Supervisor)

Dr. ZAKARIA M. MOHAMED EZ EL-DIN

Chief Researcher and Director of Damietta Vet. Lab.

Animal Health Institute

Dokki - Cairo

(Supervisor)

Signature

Mountyla M. K

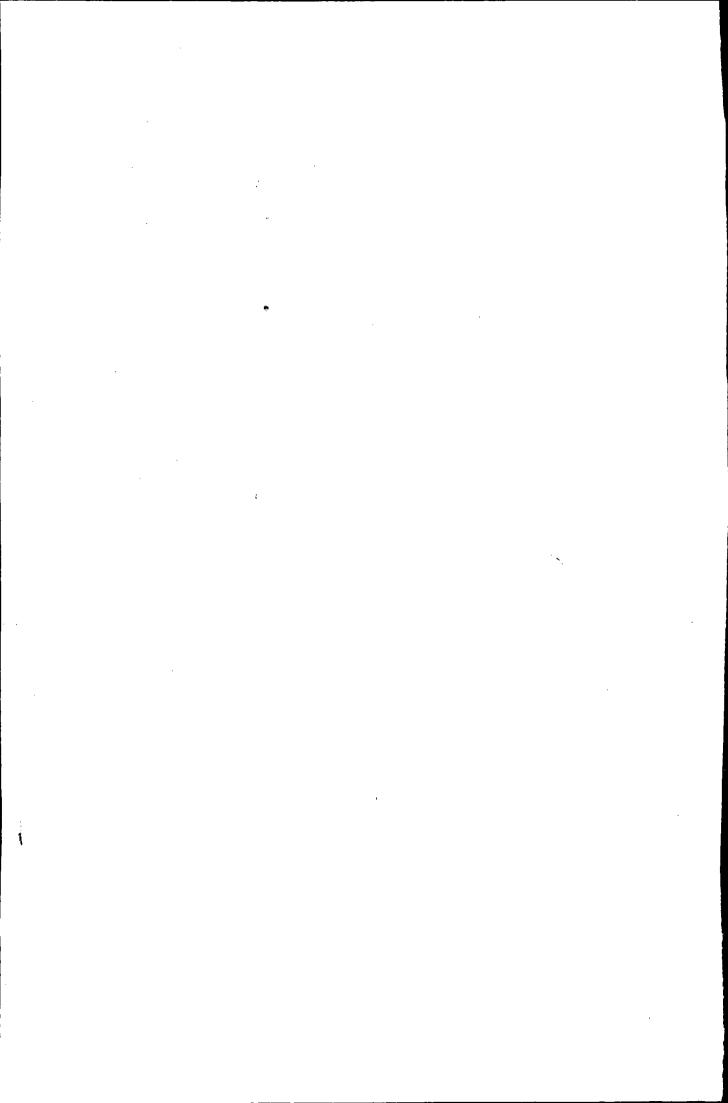
M. Sharule

M. A. Abd El-Kaders

a la

11 March, 2002

BIOTEV



HEAVY METAL RESIDUES IN MILK AND SOME DAIRY PRODUCTS IN DAMIETTA GOVERNORATE AND THEIR PUBLIC HEALTH SIGNIFICANCE

By

Mohamed El-Said Abdel-Hamid Abdel-Aziz Nasef B.V.Sc., Cairo Univ. (1983) M.V.Sc. Zagazig Univ. (1997)

Under supervision of

Dr. Ibrahim Hassan Amer Professor of Milk Hygiene Food Control Department Faculty of Vet. Medicine Zagazig University

Dr. Mahdy Abd El-Gawad Abd El Kader

Professor of Animal, Poultry and
Environment Hygiene
Dept. of Animal Hyg. & Husbandry
Faculty of Vet. Medicine
Zagazig University

Dr. Zakaria M. Mohamed Ez El-Din

Chief Researcher and Director of Damietta Vet. Laboratory Animal Health Research Institute Dokki – Cairo

A Thesis
Submitted to Zagazig University
Faculty of Veterinary Medicine
For the Degree of
Philosophy Doctor of Vet. Medical Sciences
(Milk Hygiene)
Food Control Department
2002

. 0 .

ACKNOWLEDGEMENT

Firstly, I wish to express my sincere gratitude to indebted to ALLAH, Who gave me the ability of patience to finish this work.

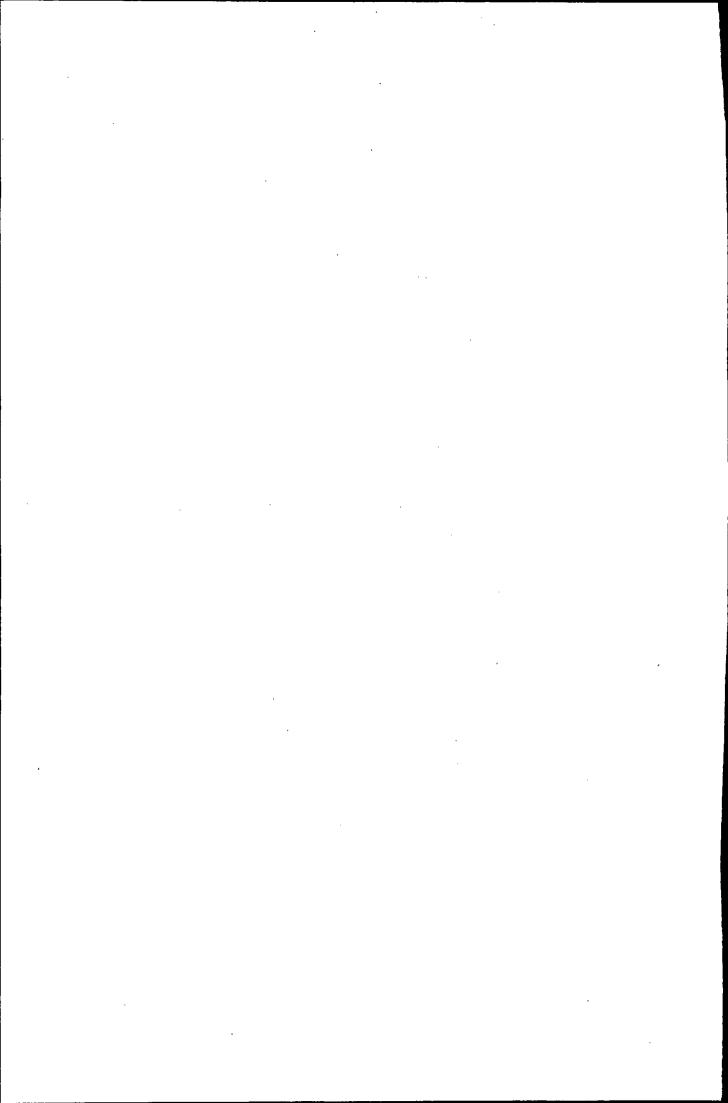
I wish to express sincere and cordially thanks to **Dr. Ibrahim H. Amer,** Prof. of Milk Hygiene, Food Control Department, Faculty of Veterinary Medicine, Zagazig University, for his guidance, suggestions, criticism and advices that gave me the greatest help to accomplish this study.

Special word of thanks and gratitude to **Dr. Mahdy A. abd El-Kader**, Prof. of Animal, Poultry and Environ. Hygiene, Department of Animal Hygiene and Husbandry, Faculty of Veterinary Medicine, Zagazig University, for his supervision, valuable support, criticism, encouragement and advice throughout the study period.

Words of appreciation and cordially thanks are reserved for **Dr. Zakaria M.M. Ez El-Din,** Chief Researcher and Director of Food Control Laboratory at Damietta Seaport Animal Health Institute, for his continuous supervision, guidance, continuous advices and encouragement throughout the study period.

Special word of thanks and gratitude to **Dr. Magdy Sharaf El-Sayd**, Prof. of Milk Hygiene, Food Control Department, Faculty of Veterinary Medicine, Zagazig University, for his valuable support, encouragement and advice throughout the study period.

I wish to record my thanks and gratitude to **Dr. Abd El-Monem Ali Ahmed,** Prof. of Veterinary Pathology, Faculty of Veterinary Medicine,
Zagazig University, for his valuable help in histopathological part of this study.



Special thanks and gratitude to **Dr. Ali A. El-Abedy**, Chief Researcher and Head of Animal Health Institute, Dokki, Cairo, for his guidance, continuous advices and encouragement throughout the study.

Special thanks and gratitude to **Dr. Zeinab M. Niazy**, Chief Researcher and Head of Reference Laboratory of Food Control and its branches at Seaports, Animal Health Institute, Dokki, Cairo, for her guidance, continuous advices and encouragement throughout the study.

My sincere and hearty thanks to all friends in both Food Control Laboratory at Damietta Seaport and Damietta Veterinary Laboratory.

The author would like to thank all the staff members at Food Control Department, Faculty of Veterinary Medicine, Zagazig University, for their valuable help and encouragement during this work.

:		
	,	

CONTENTS

Subjects	Page
INTRODUCTION	1
REVIEW OF LITERATURE	3
MATERIAL AND METHODS	67
RESULTS	79
DISCUSSION	123
SUMMARY	162
CONCLUSION & RECOMMENDATIONS	168
REFERENCES	170
VITA	203
ARARIC SUMMARY	

		,		
			·	
	e e			