



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



# شبكة المعلومات الجامعية

## التوثيق الالكتروني والميكرو فيلم

# جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأفلام قد اعدت دون أية تغيرات



## يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of  
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



# بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات  
لم ترد بالأصل

**ASSESSMENT OF THE SAFETY OF USING  
MONOSODIUM GLUTAMATE AS  
FLAVOR ENHANCER IN  
SOME FOODS**

**BY**

**Nehad Ali Abd El-Rahman**

B.V.Sc. 1983, Cairo University

Diploma Environmental Science 1994, Ain Shams University

**A Thesis Submitted in Partial Fulfillment  
of  
The Requirement for the Master Degree  
in  
Environmental Science**

**Department of Agriculture Sciences  
Institute of Environmental Studies and Research  
Ain Shams University**

B 71 000

**2001**

1777

**ASSESSMENT OF THE SAFETY OF USING  
MONOSODIUM GLUTAMATE AS  
FLAVOR ENHANCER IN  
SOME FOODS**

**BY**

**Nehad Ali Abd El-Rahman**

B.V.Sc. 1983, Cairo University

Diploma Environmental Science 1994, Ain Shams University

**A Thesis Submitted in Partial Fulfillment  
of  
The Requirement for the Master Degree  
in  
Environmental Science  
Department of Agriculture Science**

**Under the Supervision of :**

**Prof. Dr. Nadia Reffat Abd El-Rahman**

Professor of Food Science, Faculty of Agriculture  
Ain Shams University.

**Dr. Manar Tawfik Ibrahim**

Ass. Prof. of Food Science, Faculty of Agriculture  
Ain Shams University.

**Dr. Mohamed Samy Soliman**

Ass. Prof. of Clinical Pathology, National Center for  
Radiation Research and Technology.  
Atomic Energy Authority





## APPROVAL SHEET

### ASSESSMENT OF THE SAFETY OF USING MONOSODIUM GLUTAMATE AS FLAVOR ENHANCE IN SOME FOODS

By  
*Nehad Ali Abd El - Rahman*  
For M.Sc Degree in Environmental Sciences  
Department of Agriculture Sciences

A Thesis for M. Sc Degree in Environmental Science has  
Been approved by

1- Prof. Dr. Nadia Reffat Abd El- Rahman  
Prof. Dr. of Food Sciences  
Faculty Of Agriculture, Ain Shams University

*Nadia R. A.*

*Magda H. A.*

2- Prof. Dr. Magda Habeb Alam  
Prof. Dr. of Food Sciences  
Faculty Of Agriculture, Ain Shams University

3- Prof. Dr. Rafat Mohamed Yousri  
Prof. of Biochemistry & Chairman of  
National Center For Radiation  
Research and Technology

*R. M. Yousri*

Date of Examination                      /    /2001



## ACKNOWLEDGEMENT

I wish to express my deepest appreciation and sincerest gratitude to **Prof . Dr. Nadia Reffat Abd El-Rahman** Professor of Food Science, Faculty of Agriculture, Ain Shams University, whose ideas brought forward this subject. Her extreme patience, meticulous supervision, precious advise gave me the valuable opportunity to benefit from her faithful guidance and constant support. I will always remember her unforgettable encouragement and kindness.

My sincere gratitude should be expressed to **Dr. Mohamed Samy Soliman**, Assistant prof. of clinical pathology, National Centre for Radiation Research and Technology, for his kind guidance and supervision and for the unlimited time and effort he generously offered me.

My deepest thanks goes to **Dr. Manar Tawfik Ibrahim** Assistant prof. of Food Science, Faculty of Agriculture, Ain Shams University, for her kind guidance and supervision and for her great help and offering me much of her time and effort.

This work was possible through the facilities given by the National Center for Radiation Research and Technology. Atomic Energy Authority.

Thank you all,



## *ABSTRACT*

A total number of 140 male albino rats were divided into 7 groups each group included 20 rats: Control group, two monosodium glutamate (MSG) treated groups (group received MSG orally in the chemical form & group fed on processed cheese as natural source of MSG), two Vit C & Vit E treated groups (group received vit C & vit E in the chemical form & group fed on orange juice & cotton seed oil as natural source of each vitamin respectively and two MSG, vit C & vit E treated groups one group received them in chemical form & other group fed on natural sources containing them). All groups were fed for 4 weeks and used to investigate the monosodium glutamate administration deleterious effects on male rat reproductive system and to examine the role of some antioxidants namely vit. E & C in minimizing such hazards. They all subjected to determination of serum thiobarbituric acid reactive substance (MDA), serum superoxide dismutase (SOD) enzyme activity, serum testosterone level and histological examination of testicular tissues. According to the study results, the deleterious effects of MSG were minimized by administration of vit E & C more effectively in the chemical

form than from natural sources. So it is recommended to use vit. E & vit C. tablets routinely as protective measure against deleterious effects of MSG.

---

**Key words:** MSG, vit. E, vit. C, MDA, SOD and testosterone.