

سامية محمد مصطفى



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



سامية محمد مصطفى



شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



سامية محمد مصطفى



شبكة المعلومات الجامعية

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



سامية محمد مصطفى



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



سامية محمد مصطفى



شبكة المعلومات الجامعية



بالرسالة صفحات لم ترد بالأصل



**EFFECT OF SELECTED EGYPTIAN
LEGUMES AND CEREALS ON URIC ACID
METABOLISM AND RENAL FUNCTIONS
IN RATS**

By

Mohamed Ahmed Abd El-Salam

B.Sc

Nutrition and Food Sciences

Faculty of Home Economics

Minufiya University

1997

THESIS

**Submitted in fulfillment of requirement for
degree of master in nutrition and food science**

Faculty of home economics

Minufiya university

2001

B

15/11/9

**EFFECT OF SELECTED EGYPTIAN
LEGUMES AND CEREALS ON URIC ACID
METABOLISM AND RENAL FUNCTIONS
IN RATS**

By

Mohamed Ahmed Abd El-Salam

B.Sc

Nutrition and Food Sciences

Faculty of Home Economics

Minufiya University

1997

THESIS

**Submitted in fulfillment of requirement for
degree of master in nutrition and food science**

Faculty of home economics

Minufiya university

2001

Approval Sheet

Title: Effect of Selected Egyptian Legumes and Cereals on Uric Acid Metabolism and Renal Functions In Rats

Degree: M.Sc. Degree in Nutrition and Food Science

Name of student: Mohamed Ahmed Abd El-Salam

This thesis has been approved by

Prof. Dr 

Prof. Dr 

Prof. Dr 

Prof. Dr 

Committee in charge

Date/18/7/2001

Supervisors Committee

**Title: Effect of Selected Egyptian Legumes
and Cereals on Uric Acid Metabolism
and Renal Functions In Rats**

Dr.Prof. Laila Ahmed Helmy El.Bedewy *Laila Bedewy*

Prof. of Nutrition and Food Science. Faculty of Home Economics, Minufiya University.

Dr.Prof. Sohier Abd El-Hamid Saleh *Sohier*

Prof and Head of Physiology Dept. Faculty of Medicine Minufiya University.

Dr. Mohamed Saleh Mohamed *Moh Saleh*

Lecturer of Nutrition and Food Sciences. Faculty of Home Economics.
Minufiya University.



وَإِنَّا قَالِمٌ بِمُوسَىٰ إِنَّ بُكْرَةً عَلَىٰ ظَعْنِهِ ۚ

فَأَنبَأَ الْبَنِي إِسْرَءِيلَ أَنَا وَمِمَّا يُنبِئُ الْآرَضُ مِنْ بَنِي إِسْرَءِيلَ أَوْ فِئَةٍ مِّنْهُمْ

وَعَسَىٰ أَن تَكُونَ الْآخِرَةُ ۚ

هُوَ الْبَاقِي ۚ ... آية 61 سورة البقرة

List of Contents

INTRODUCTION	1
AIM OF STUDY	3
REVIEW OF LITERATURE	4
Uric acid	4
Nature and occurrence of uric acid.....	5
Sources of uric acid:	5
Factors that may affect uric acid	7
Diet:	7
Sex:	7
Obesity:	8
Hyperglycemia, diabetes mellitus and insulin:	8
Serum creatinine:	8
Serum triglycerides and serum cholesterol levels:	9
Renal handling of uric acid:	9
Uric acid excretion.....	10
Relationship between food and serum uric acid	10
Effect of different methods of cooking on purine content of food.....	11
Controversial dietary restrictions:	12
Ribonucleic acid (RNA):	12
Purines and protein	12
Hyperuricemia and Gout:	13
Hyperuricemia:.....	13
Gout :	14
The kidney and gout:	14
Legumes.....	15
Legumes as a sources of protein.	15
Legumes proteins.	15
Protein digestibility.	16
Legumes as a source of dietary fiber.	16
Whole legumes are good sources of dietary fiber.	17
Hypocholesterolaemic effects of grain legumes.	17
Anti-nutritional Factors in Legumes	18
Major Legumes:.....	19
-1Faba Bean (Medames) {vicia faba L}.....	19
Utilization	20
Chemical Composition.	20
Anti-nutritional factors.	22
Lentils (lens culinaris medik).....	23

<i>Utilization:</i>	23
<i>Chemical Composition</i>	24
<i>Anti-nutritional factors</i>	24
Moth bean (<i>vigna aconitifolia</i> (jacq.) marechal(.....	26
<i>Utilization</i>	26
<i>Chemical Composition</i>	26
<i>Anti-nutritional Factors</i>	28
Common bean (<i>Phaseoolus vulgaris</i> L.).....	28
<i>Chemical Composition</i>	29
<i>Anti-nutritional Factors</i>	31
Cereals.....	33
Wheat.....	35
<i>Nutritional Quality of Wheat</i>	37
Rice.....	37
<i>Proximate Analysis of Rough Rice and Its Fractions</i>	38
<i>Non-protein Nitrogen</i>	41
MATERIALS AND METHODS	43
Materials:.....	43
Methods.....	43
Chemical Composition of Legumes and Cereals:.....	43
The Biological Assay:.....	44
<i>a- Composition of diets:</i>	44
<i>b- Experimental Animals:</i>	46
RESULTS AND DISCUSSION	51
SUMMARY	110
REFERENCES	117

List of Tables

Table (1): Purine yielding foods	6
Table (2): Chemical composition of faba bean (dried)	21
Table (3): Essential amino acid composition of faba beans	21
Table (4): Chemical Composition Of Lentil Seeds	25
Table (5): Essential Amino Acid Composition Of Lentil Seed Proteins	25
Table (6): Chemical composition of moth bean seeds	27
Table (7): Essential amino acid composition of moth bean proteins	27
Table (8): Chemical Composition of Common Beans	30
Table (9): Amino acid content of common beans (mg/100g raw dried beans)	31
Table (10): Chemical composition of different kind of rice	39
Table (11): the chemical composition of different food items	44
Table (12): The ingredients of control (casein) diet. (100 g)	44
Table (13): The composition of mineral mixture	45
Table (14): The composition of vitamin mixture	45
Table (15) the contents of different formula of legumes and cereals and other essentials ingredients	46
Table (16): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Casein Based Diet	52
Table (17): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Common Bean Diet	57
Table (18): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Moth Bean Diet	62
Table (19): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal	

Parameters, And Renal Functions For Normal Rats Fed Faba Bean Diet.....	66
Table (20): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Lentils Diet.....	70
Table (21): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Wheat Diet.....	74
Table (22): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Normal Rats Fed Rice Diet.....	78
Table (23): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Casein Based Diet.....	80
Table (24): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Common Bean Diet.....	85
Table (25): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Moth Bean Diet.....	89
Table (26): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Faba Bean Diet.....	93
Table (27): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Lentils Diet.....	97
Table (28): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Wheat Diet.....	101

Table (29): Mean $\pm$ SEM Of Weight Gain, Relative Kidney Weight, Relative Liver Weight, Serum Parameters, Renal Parameters, And Renal Functions For Hyperuricemic Rats Fed Rice Diet. 105

Table (30): Correlation Coefficients Between Different Parameters for Normal Rats..... 107

Table (31): Correlation Coefficients Between Different Parameters for Hyperuricemic Rats..... 109
