



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني 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



MONA MAGHRABY



Ain Shams University
Specific Education Faculty
Home Economic Department

**Effect of yogurt fortified with Date fruit, Seeds and Leaves on blood
glucose of Diabetic Rats**

Thesis submitted by

Alyaa Arafat El-Ahwany

B.Sc. in Home Economics,

Nutrition and Food Science Department.

Faculty of Home Economics, Helwan University

In Partial Fulfillment of the Requirement for the M.Sc. Degree in
Nutrition and Food Science, Specific Education, Home Economics.

Under supervision of

Prof. Dr. Usama El-Said Mostafa

Prof. of Nutrition and Food Science,
Dean of Specific Education Faculty,
Ain Shams University.

Prof. Dr. Naeem Mohamed Rabe

Prof. of Nutrition
Nutritin and Food Science Dept., Vice
Dean of Education and Student Affairs
Home Economics Faculty, Helwan
University.

Dr. Gehan Ebrahim

Assistant of Nutrition and Food Science,
Specific Education Faculty, Ain Shams University.

2021



Acknowledgement

First of all thanks are due to **ALLAH** whom I related any success and achievement in my life.

Deepest thanks and gratitude is also given to **Prof. Dr. Usama El-Said Mostafa** Prof. of Nutrition and Food Science, Dean of Specific Education Faculty, Ain Shams University for his supervision, sincere help, great facilities he offered and valuable help during the study which could not be carried out with a real pleasure and become as a sun shine without his opinions.

I would like to express my deepest thanks to **Prof. Dr. Naeem Mohamed Rabeh**, Prof. of Nutrition in Nutrition and Food Sciences Department, Vice Dean of Students Home Economics Faculty, Helwan University for his supervision, valuable guidance, advice, great help and continuous encouragement throughout this work,

My grateful thanks to **Dr. Gehan Ebrahim** Prof. Assistant of Nutrition and Food Science, Specific Education Faculty, Ain Shams University for her supervision, unlimited help, co operation, valuable comments and advice throughout this work.

Finally Many thanks to my **Family** for their encouragement to start my postgraduate studies, Also a special thanks from my deep heart to my **Dad** spirit Allah rest him soul and forgiven him , **Mum** may Allah bless her long life and health, she still plead me from the favor of her prayers and my sister **Abeer** and brother's **Alaa & Adel** they are giving me advices whenever I needed one and supporting me materially and morally.

Last but not least I can't forget my loyal friends who were all by my side cooperating with me .

Abstract

Effect of yogurt fortified with Date fruit, Seeds and Leaves on blood glucose of Diabetic Rats

Alyaa Arafat Alehwany

B.Sc. in Home Economics, 2011

Nutrition and Food Science Department.

Faculty of Home Economics, Helwan University

Abstract

Nowadays, tend to use synthetic drugs to lower serum glucose in diabetic patients is gradually decreased because of their related side effects, as well as a progression of drug resistance. In this regard, tend to use of medicinal plants has been doubled. Therefore, this work was conducted to investigate the effect of yogurt fortified with date fruit, leaves and seed at the level of 10% on diabetic rats. Thirty five adult male albino rat of Sprague Dawley strain, weighing (176.5 ± 1.20 g) were divided in two main groups. The first main group ($n=7$) was kept as negative control group, the second main group ($n=28$) was injected interperitoneal with Streptozotocin (STZ) to induce diabetes, then these rats were divided into four subgroups. Subgroup one was fed on the basal diet and served as a positive control group, subgroups from 2 to 3 were fed on basal diet and yogurt fortified with date fruit, seed, and leaves respectively. At the end of the experimental period (8 weeks), rats were sacrificed and blood samples were collected to obtain serum. The results indicated that, STZ treated rats showed significant reduction ($P<0.05$) in serum insulin

concentration and, increased glucose levels compared to normal rats. Supplementation with yogurt date fruit, seed, and leaves in the diet caused significant ($P<0.05$) increase in the concentration of insulin while glucose level was significantly ($P<0.05$) decreased compared to the positive control one. It was also observed that, liver and kidney functions and lipid profile of the treated rats were improved compared to the positive control group. In conclusions, diet supplemented with yogurt date fruit, seed, and leaves caused an improvement of the biochemical results from diabetes, therefore yogurt fortified with date fruit, seed, and leaves could be used as a suitable supplementation therapy for diabetic patients.

Keywords: Diabetes, yogurt, Date fruit, Date seed, Date leaves, glucose, lipid profile, fortification.

List of contents

Contents	Page
Abstract	1
Introduction	11
Aim of the study	16
Review of literature	18
1.Diabetes Mellitus:	19
A. Definition of Diabetes mellitus.	19
B. Categories of Diabetes Mellitus.	20
C. Causes.	6
D. Prevalence of diabetes.	21
E. Symptoms and complications of diabetes mellitus.	22
F. Induction of diabetes in rats.	23
G. Treatment of diabetes.	23
2. Date :	24
1- Chemical composition	32
2- Health benefits	36
Material and Methods:	44
Materials	44
Methods:	45
1. Preparation of dried date	45
2. Chemical composition of date	46
3. Fortification.	46
4. Induction of Diabetes	46
5.Biological study	47
6. Biochemical analysis	48
7.static analysis	49

8.Sensory Evaluation	49
A.Color	49
B.Odor	50
C.texture	51
D.Taste	51
E. Over all acceptability	52
Results and discussion	53
Summary	91
Recommendations	97
References	100
Arabic summary	125

List of tables

N	Title	Page
1	The crude chemical composition of dried date fruit, seeds and leaves.	55
2	Total phenols and total flavonoids of dried date fruit, seeds and leaves.	57
3	Effect of date fruit, seeds and leaves on serum glucose level and insulin activity on diabetic rats.	57
4	Effect of date fruit, seeds and leaves on serum lipids profile of diabetic rats.	66
5	Effect of date fruit, seeds and leaves in serum urea, uric acid and creatinine on diabetic rats.	73
6	Effect of date fruit, seeds and leaves on liver function of diabetic rats.	78
7	Changes of body weight, feed intake and FER in the diabetic rats fed on diet supplemented with of date fruit, seeds and leaves.	85
8	Sensory Evaluation of leaves, Seeds, Fruits	90

List of figures

N	Title	Page
1	Effect of date fruit, seeds and leaves on serum glucose level on diabetic rats.	59
2	Effect of date fruit, seeds and leaves on serum insulin concentration on diabetic rats.	60
3	Effect of date fruit, seeds and leaves on serum TC of diabetic rats.	68
4	Effect of date fruit, seeds and leaves on serum TG of diabetic rats.	69
5	Effect of date fruit, seeds and leaves on serum HDL-C of diabetic rats.	70
6	Effect of date fruit, seeds and leaves on serum VLDL-C of diabetic rats.	71
7	Effect of date fruit, seeds and leaves on serum LDL-C of diabetic rats.	72
8	Effect of date fruit, seeds and leaves on serum urea of diabetic rats.	74
9	Effect of date fruit, seeds and leaves on serum uric acid of diabetic rats.	75