

سامية محمد مصطفى



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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 تغييرات



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



**CHEMICAL AND BIOLOGICAL STUDIES ON
SOME SOYBEAN PRODUCTS USED TO
IMPROVE BAKERY PRODUCTS**

By

MASOUD ABDEL-AZEEM KAMEL IBRAHIM
B.Sc. Agric., Institute Co-Operation Shobra El-Khema (1997)

THESIS

**Submitted In Partial Fulfillment Of
The Requirement For The Degree Of**

MASTER OF SCIENCE

IN

**Agricultural Science
(Food Technology)**

**Food Science Department
Faculty of Agriculture, Moshtohor
Zagazig University (Benha Branch)**

2003



B

19000

1880

**CHEMICAL AND BIOLOGICAL STUDIES ON SOME SOYBEAN
PRODUCTS USED TO IMPROVE BAKERY PRODUCTS**

By

MASOUD ABD ELAZEEM KAMEL IBRAHIM

B.Sc. Agric., Institute Co-Operation Shobra El-Khema (1997)

Under the supervision of:

Prof. Dr. H.H. El-Tanahy

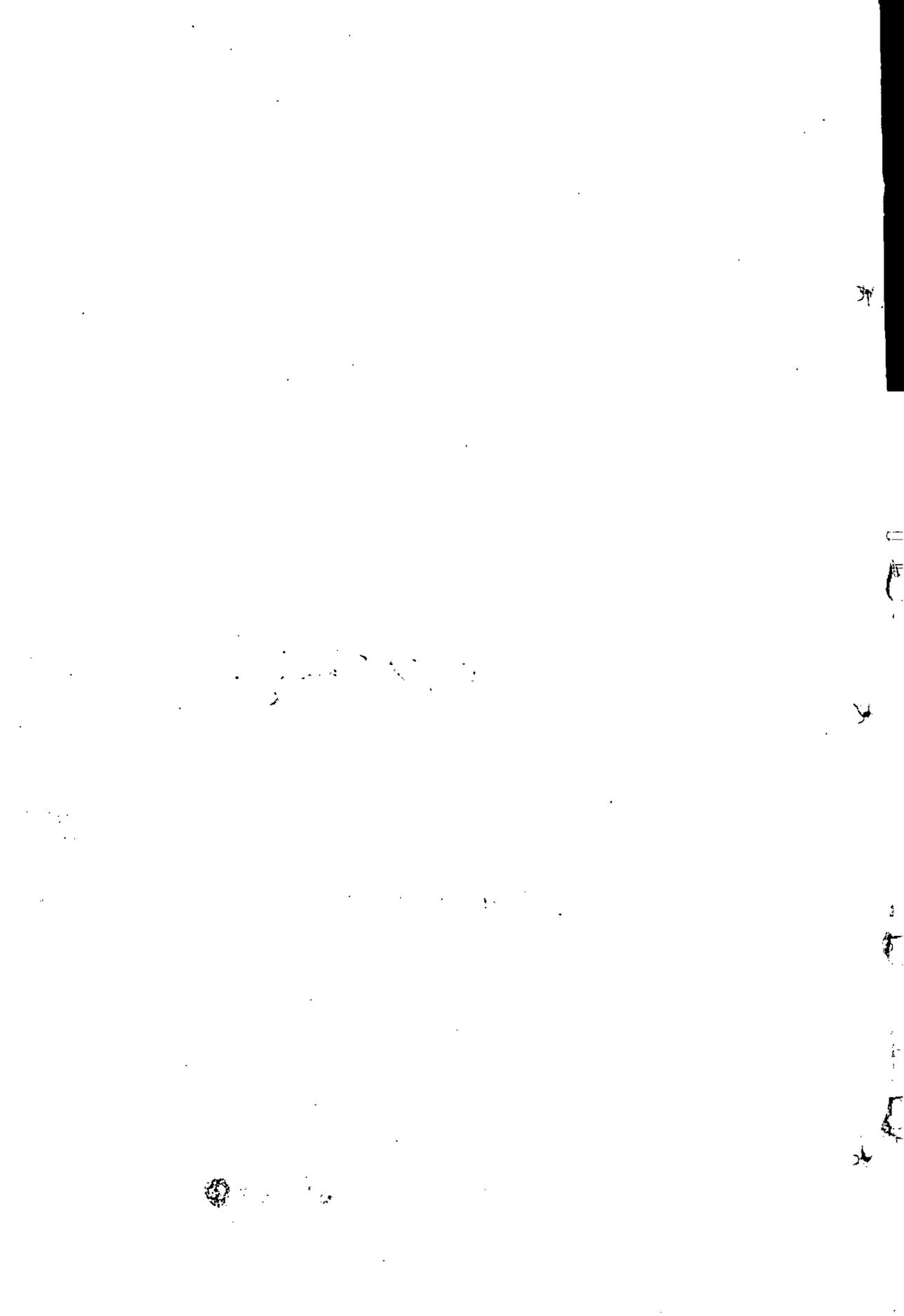
H. H. El-Tanahy
Prof. of Food Technology, Fac. of Agric. Moshtohor, Zagazig Univ.

Dr. M.H.M. Mahmoud

M. H. Mohamed
Ass. Prof. of Food Technology, Fac. of Agric. Moshtohor, Zagazig Univ.

Prof. Dr. Afaf A. Atia

D. Afaf A. Atia
Prof. of Food Technology, Food Technology Institute, Agric. Res. Center, Agric. Ministry.



**ZAGAZIG UNIVERSITY
FACULTY OF AGRICULTURE
MOSHTOHOR**

APPROVAL SHEET

Name of Student : MASOUD ABD ELAZEEM KAMEL IBRAHIM
Degree : M.Sc. in Food Technology
**Title of Thesis : Chemical and biological studies on some
soybean products used to improve bakery
products.**

Approved by:

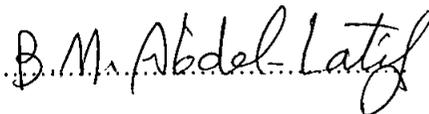
Prof. Dr. S.A. Soliman

*Professor of Food Technology,
Fac. of Agric. Moshtohor, Zagazig Univ.*



Prof. Dr. B.M. Abdel-Latif

*Professor, Food Technology,
Food Technl. Institute, Agric. Res. Center, Agric. Ministry*



Prof. Dr. H.H. El-Tanahy

*Professor of Food Technology,
Fac. of Agric Moshtohor, Zagazig Univ.*



Dr. M.H. Mohamed

*Ass. Professor of Food Technology,
Fac. of Agric Moshtohor, Zagazig Univ*



(Committee in charge)

Date: / /2003.

*

Handwritten text, possibly a name or title, located in the upper middle section of the page.

*

Handwritten text, possibly a name or title, located in the lower middle section of the page.

*

ACKNOWLEDGEMENT

I wish to express my deepest gratitude and sincere appreciation to Prof. Dr. *H.H.A. El-Tanahy*, Professor of Food Technology, Dept. of Food Science, Fac. of Agric. Moshtohor, Zagazig University, for his supervision, useful advice, valuable assistance, suggestions and guidance throughout this investigation.

I am also greatly indebted to *Dr. Afaf A. Atia*, Professor of Food Technology, in Food Technology Institute, Agric. Res. Center, for her useful advice and guidance help during the practical work and writing the manuscript.

My deepest thanks and appreciation to Dr. *M.H.M. Mahmoud*, Ass. Professor of Food Technology, Dept. of Food Science, Fac. of Agric. Moshtohor, Zagazig University, for his valuable supervision.

Thanks to all the staff members of the Food Science Dept., Fac. of Agric. Moshtohor, Zagazig Univ.

Finally, thanks to all the staff members of the Bread and Pasta Technology Dept., Food Technology Research Institute, Agricultural Research Center.

✱

✱

□

✱

✱

Contents

	Page
1. INTRODUCTION	1
2. REVIEW OF LITURATURE	3
2.1. Chemical composition of raw materials	3
2.1.1. Wheat flour	3
2.1.2. Defatted soybean flour	4
2.1.3. Soybean protein isolate	5
2.2. Effect of adding soybean flour and soybean protein isolate to wheat flour on the rheological properties of dough	5
2.3. Sensory evaluation of white bread contained soy flour or soy protein isolate	7
2.4. Fortification of some bakery products with soy flour or soy protein isolate	9
2.4.1. Pan bread	9
2.4.2. Cakes	10
2.4.3. Biscuits	11
2.5. The nutritional and biological evaluation of bakery products contained soy flour protein isolate	12
2.6. Effect of soybean on cholesterol, triglycerides and total lipid in serum	13
3. MATERIALS AND METHODS	17
3.1. Materials	17
3.2. Methods	17
4. RESULTS AND DISCUSSION	31
4.1. Chemical composition of the used raw materials	31
4.2. Effect of substitution wheat flour 72% (hard or soft) with different levels of defatted soybean flour (DSF) and soybean protein isolate (SPI) on rheological properties of dough	31
4.2.1. Farinogram parameters of wheat flour dough (HWF and SWF 72%) substituted with defatted soybean flour or soybean protein isolate at different levels	34

	Page
4.2.2. Extensogram parameters of wheat flour dough (HWF and SWF 72%) substituted with defatted soybean flour or soybean protein isolate at different levels	39
4.3. Effect of substitution wheat flour 72% (hard or soft) with different levels of defatted soybean flour (DSF) and soybean protein isolate (SPI) on sensory characteristics of the following bakery products	45
4.3.1. Pan bread	45
4.3.2. Cake	50
4.3.3. Biscuits	54
4.4. Effect of substitution wheat flour 72% (hard or soft) with different levels of defatted soybean flour (DSF) and soybean protein isolate (SPI) on chemical composition	58
4.4.1. Pan bread	58
4.4.2. Cake	58
4.4.3. Biscuits	61
4.5. Effect of substitution wheat flour 72% (hard or soft) with different levels of defatted soybean flour (DSF) and soybean protein isolate (SPI) on physical properties	63
4.5.1. Pan bread	63
4.5.2. Cake	63
4.6. Biological evaluation of tested pan bread, cake and biscuits contained defatted soy flour or soy protein isolate experimental diets	66
4.6.1. Feed efficiency (FE)	66
4.6.2. Net protein utilization (NPU)	69
4.6.3. Digestibility coefficient (DC)	72
4.6.4. Biological value (BV)	75
4.6.5. Protein efficiency ratio (PER)	75
4.7. Effect of experimental diets for pan bread, cake and biscuits on total cholesterol, triglycerides and total lipids in blood serum rats	81
5. SUMMARY	87
6. REFERENCES	93
7. ARABIC SUMMARY	