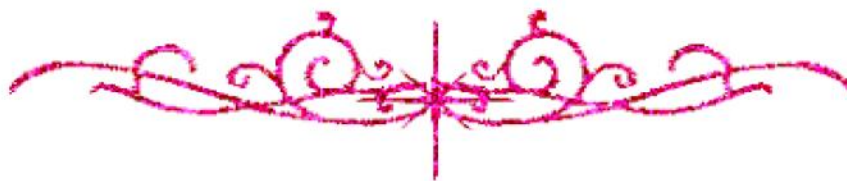


بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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





بعض الوثائق الأصلية تالفة





بالرسالة صفحات
لم ترد بالأصل



ANTIOXIDANT ACTIVITY OF MILK FRACTIONS AND THEIR USE FOR MAKING SOFT CHEESE

By

AHMED ALAA EL-DIN AHMED ELHADYDY
B.Sc. Agric. Sci. (Dairy Science), Fac. Agric., Cairo Univ., 2013

THESIS

**Submitted in Partial Fulfillment of the
Requirements for the Degree of**

MASTER OF SCIENCE

In

**Agricultural Sciences
(Dairy Science)**

**Department of Dairy Science
Faculty of Agriculture
Cairo University
EGYPT**

2020

Format Reviewer

Vice Dean of Graduate Studies

APPROVAL SHEET

**ANTIOXIDANT ACTIVITY OF MILK FRACTIONS
AND THEIR USE FOR MAKING SOFT CHEESE**

**M.Sc. Thesis
In
Agric. Sci. (Dairy Science)**

By

**AHMED ALAA EL-DIN AHMED ELHADYDY
B.Sc. Agric. Sci. (Dairy Science), Fac. Agric., Cairo Univ., 2013**

APPROVAL COMMITTEE

Dr. AHMED FOUAD EL-ERIAN
Professor of Dairy Sciences, Fac. Agric., Al-Azhar University

Dr. HODA MAHMOUD ELZEINY
Professor of Dairy Sciences, Fac. Agric., Cairo University

Dr. MOHAMED AHMED ABDULKHALEK AZZAM
Professor of Dairy Sciences, Fac. Agric., Cairo University

Dr. ALAA MOHAMED ABD EL-FATTAH
Professor of Dairy Sciences, Fac. Agric., Cairo University

Date: 26 / 2 / 2020

SUPERVISION SHEET

**ANTIOXIDANT ACTIVITY OF MILK FRACTIONS
AND THEIR USE FOR MAKING SOFT CHEESE**

**M.Sc. Thesis
In
Agric. Sci. (Dairy Science)**

By

AHMED ALAA EL-DIN AHMED ELHADYDY
B.Sc. Agric. Sci. (Dairy Science), Fac. Agric., Cairo Univ., 2013

SUPERVISION COMMITTEE

Dr. ALAA MOHAMED ABD EL-FATTAH
Professor of Dairy Sciences, Fac. Agric., Cairo University

Dr. MOHAMED AHMED ABDULKHALEK AZZAM
Professor of Dairy Sciences, Fac. Agric., Cairo University

Dr. HANY ABDEL SATAR AHMED ELKASHEF
Lecturer of Dairy Sciences, Fac. Agric., Cairo University

Name of Candidate: Ahmed Alaa El-Din Ahmed Elhadydy **Degree:** M.Sc.
Title of Thesis: Antioxidant Activity of Milk Fractions and Their Use for Making Soft Cheese.

Supervisors: Dr. Alaa Mohamed Abd El-Fattah
Dr. Mohamed Ahmed Abdulkhalek Azzam
Dr. Hany Abdel Satar Ahmed Elkashef

Department: Dairy Science

Approval: 26/2/2020

ABSTRACT

This study was designed to determine the antioxidant activity of cow, buffalo, goat, sheep and camel milk either raw or heat-treated by pasteurization or sterilization. DPPH radical scavenging activity, metal chelating activity and reducing power methods were used to evaluate the antioxidant activity. Also, skim milk, whey and deproteinized milk were prepared to determine which milk components including fat, casein and whey proteins are responsible for antioxidant activity. In addition, this study aimed to produce highly antioxidant activity soft cheese from the curds obtained from skim milk, whey and buttermilk. Four cheese treatments were made from skim milk, whey and buttermilk curds at different ratios. Kareish cheese was made and served as a control.

The results showed that sheep milk exhibited the strongest DPPH radical scavenging and metal chelating activities, while buffalo and sheep milk presented had the highest reducing power. Antioxidant activity of all milk fractions was lower than that of whole milk. Moreover, skim milk had the highest antioxidant capacity, while deproteinized milk was the lowest.

Also, the results demonstrated that pasteurization did not affect the antioxidant activity of different types of milk. Sterilization led to increase the antioxidant activity of milk from different species.

Furthermore, the obtained results revealed that blending whey and buttermilk curds to Kareish cheese curd led to increase total solids and fat of cheese treatments compared to control. Cheese of treatment 4 (1 Kareish curd: 2 whey curd: 1 buttermilk curd) gained the highest scores of flavor and overall acceptability. Kareish cheese exhibited low antioxidant activity by three methods. Blending Kareish cheese curd with whey and buttermilk curds in cheese treatments led to increase the antioxidant capacity. A decrease in the production cost per kilogram of four cheese treatments at rate 35-48% was observed compared to the production cost of control cheese.

Key words: Antioxidant activity, Different milk species, Milk fractions, Heat treatment, Fresh soft cheese.

ACKNOWLEDGEMENT

First of all I would like to express my first thanks to ALLAH who without his aid this work couldn't be done.

With my deep gratitude I would like to thank Dr. Alaa Mohamed Abd El-Fattah and Dr. Mohamed Abdulkhalek Azzam Professors of Dairy Science, Faculty of Agriculture, Cairo University for planning, supervision and their guidance through the course of study and writing as well as revision the manuscript of this thesis.

I would like to thank Dr. Hany Abdel Satar Elkashef lecturer of Dairy Science, Faculty of Agriculture, Cairo University for planning and writing as well as revision the manuscript of this thesis.

Last but not least, it gives me pleasure to thank all staff members in Department of Food Additives, Regional Center for Food and Feed, Agricultural Research Center. I shall always remember the friendship, the tremendous contribution and support they gave me.

