



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



HANAA ALY



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 تغييرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



HANAA ALY

Cairo University
Faculty of Veterinary Medicine
Department of Food Hygiene and Control



Effect of Technological Properties of Buffalo Meat on Quality of Burger

A Thesis Presented

By

Breen Fouad Zaki Abd El-Kawi
(B.V.Sc., Cairo University, 2012)

**For Master Degree in
Veterinary Medical Sciences, Meat Hygiene and Control**

Under The Supervision of

Prof. Dr.
Nabil Abdel-Gaber Yassien
Professor of Meat Hygiene and Control
Faculty of Veterinary Medicine,
Cairo University

Prof. Dr.
Mohamed M.T. Emara
Professor of Meat Hygiene and Control
Faculty of Veterinary Medicine,
Cairo University

Dr.
Omayma M.A.L. Maghraby
Chief Researcher of Food Hygiene
Animal Health Research Institute,
Dokki

2021

Cairo University
Faculty of Veterinary Medicine
Department of Food Hygiene and Control

Name : Breen Fouad Zaki Abdel kawi
Date of birth : 11/ 8/ 1990
Degree : M.V.Sc.
Nationality : Egyptian
Specification : Hygiene and Control of Meat and its Products
Title of the thesis : Effect of technological properties of buffalo meat
on quality of Burger

Supervision:

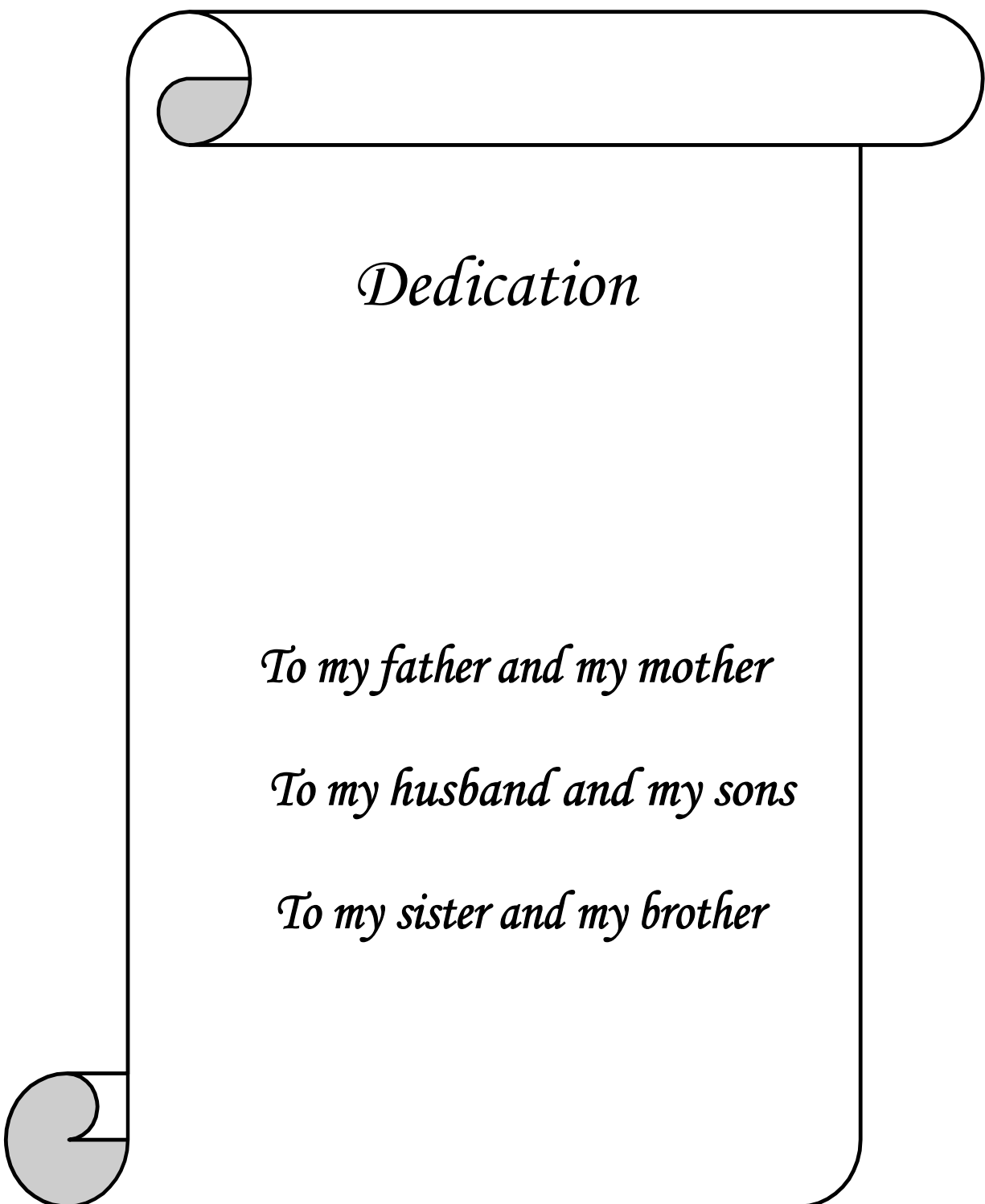
<i>Dr.Nabil A.G.Yassien</i>	Professor of Meat Hygiene, Faculty of Veterinary Medicine, Cairo University
<i>Dr. Mohamed M.T. Emar</i>	Professor of Meat Hygiene, Faculty of Veterinary Medicine, Cairo University
<i>Dr. omayma M.A.L Maghraby</i>	Chief Researcher of Food Hygiene, Animal Health Research Institute, Dokki-Giza

Abstract

The buffalo is an important beneficial domestic animal between farm animal in some countries for its benefit for producing meat, milk and considering as drought animal. The aim of current study was to analyze the buffalo meat cuts from hindquarter(*semitendinosus*) and from forequarter (*biceps*) and fats include (subcutaneous, mesenteric and kidney) from female fifteen carcasses which slaughtered at age above 5 years to evaluate their quality on manufacture of burger patty. Buffalo meat cuts were prepared for proximate chemical analysis soluble proteins, collagen content & solubility, total pigments, and myoglobin content and fats for fatty acid analysis, melting point, peroxide value and thiobarbituric acid(TBARS) test. The results showed that moisture content of the *Biceps* muscle was significantly ($P<0.05$) higher than that of the *Semitendinosus*

muscle. *Biceps* muscle was significantly ($P<0.05$) lower in fat, protein, ash, total soluble, and sarcoplasmic proteins than that of *Semitendinosus* muscle. Collagen content was significantly ($P<0.05$) lower while collagen solubility was significantly ($P<0.05$) higher than those of *Semitendinosus* muscle. The mean values for the total pigments were 6.24 and 7 mg/g for *Biceps* and *Semitendinosus* muscles respectively. The peroxide value of kidney fat was significantly ($P<0.05$) higher than those from mesenteric fat and subcutaneous fat. The mean values for TBARS (mg malonaldehyde/kg) were 0.35, 0.40 & 0.33 for kidney, subcutaneous and mesenteric fats respectively. The mean values of the melting point were non-significantly ($P<0.05$) differ between different investigated fats with mean values of 51.22, 32.67 and 44.27 respectively. The fatty acids profile revealed significant differences between examined fats. For investigation of the effect of mixing buffalo mesenteric fat with two buffalo meat cuts (*biceps* and *semitendinosus*) on quality attributes of experimentally produced buffalo burger. Three treatments based experiment with three independent replicates were performed to compare chemical, sensory quality attributes, cooking characteristics and physicochemical criteria of buffalo burger. The result of sensory characteristics showed significance higher score in appearance at 25th, 39th day and also in overall acceptability at 25th of storage in hindquarter raw burger but inverse significant higher score in overall acceptability at 53th and in binding at 53th and 81th of storage for forequarter raw burger. After cooking, the result of sensory characteristics showed significance higher in flavor at 67th of storage period

of forequarter cooked burger and significance higher in binding and tenderness at 25th of storage period for hindquarter cooked burger. forequarter burger showed significance higher in cooking yield and moisture retention but inversely that hind quarter showed significance higher in fat retention along storage .The chemical analysis of forequarter minced meat and raw burger showed significance higher in(fat and soluble collagen)but in hindquarter minced meat showed significance higher in (moisture ash),but in cooked forequarter burger showed significance higher in (moisture and soluble protein)and in cooked hindquarter showed significance higher in (fat and protein).the deterioration criteria of hind quarter burger showed significance higher in myoglobin. Finally, the produced buffalo burger from forequarter muscle is the choice for production of juicy burger and accepted to the consumers. **Keywords:** Buffalo meat, buffalo fat, quality, buffalo burger, technological properties



Dedication

To my father and my mother

To my husband and my sons

To my sister and my brother

ACKNOWLEDGEMENT

First of all, prayerful thanks to ALLAH, for everything I have.

*I wish to express my sincere gratitude to **Dr.Nabil A.G.Yassin**, Professor of Meat Hygiene, Faculty of Veterinary Medicine, Cairo University, for his stimulating supervision, guidance, continuous encouragement unfailing help throughout this study and interest during supervising this work,*

*I would like to express my thanks to Dr. **Mohamed M. Talaat Emara**, Professor of Meat Hygiene, Faculty of Veterinary Medicine, Cairo University, for his continuous help, advice and guidance throughout this study. Without his help and encouragement, this study would have never been completed.*

*My grateful appreciation and thanks to the supervisor **Dr.Omayma M.A.I.Maghrahy**, Chief Researcher of Meat Hygiene, Animal Health Research Institute, Dokki-Giza for her careful guidance, stimulating criticism and valuable discussion and advice which have made possible completion of this work,*

*I would like to thank **DR.khalid el khawas** ,Chief Researcher of Meat Hygiene, Animal Health Reaserch Institute, Dokki-Giza for his great help and support in this thesis.*

*I would like to thank **DR.Mostafa Ramadan** ,General Manager of Automatic slaughterhouse in Basateen, for his advice and help throughout the study.*

*I would like to express my deepest thanks to **Dr. Marwa R.S. Abdalla**, lecturer of Meat Hygiene and Control, of vet. Med., Cairo University, for his advice and help throughout the study.*

I would like to express my big thanks to every person include (doctors and employee) in the department of Meat Hygiene and Control of faculty of veterinary Medicine of Cairo University.

It is great pleasure for me to express my thanks and gratitude to every person that help me and support me with their devises in institute and university.

Contents

	Page
Introduction	1
Review Article	5
Research papers	
1. The technological properties of buffalo meat and fat	17
2. The technological properties of buffalo burger	35
Discussion	67
Conclusion	74
Recommendations	76
Summary	77
References	80
الملخص العربي	

