

Dedication

To my parent for support me, it impossible to complete this work.

To all my brother and sisters for making everything wonderful.

Acknowledgment

I sincerely grateful to my supervisor Professor Dr.Mohamed .A. Abdalla for his grateful help. Thank are also due to Ms. Najwa for unfailing support, most available assistance and appreciable contribution to the study. Thanks are extended to all my colleagues especially Professor Abdellhamede Elfadil, friends and all those who contributed in one way for this study.

Abstract

A broiler slaughterhouse was investigated for the presence of *Salmonella* spp. Two hundred and sixteen (216) samples were collected from broiler carcasses for identification of the isolate and bacterial viable count of Khartoum state, during June 2012 to July 2012. The obtained results showed that the concerned bacteria were determined in different operation (six CCPs) and sites (leg, breast and back) respectively. There were at significance differences between these operations and site (P-value < 0.05). The mean total viable count of bacteria after chilling at leg, breast and back sites were 3.90 ± 0.53 , 4.35 ± 1.06 and 3.10 ± 0.12 \log_{10} CFU/cm², in after evisceration at leg, breast and back were 3.42 ± 0.51 , 4.33 ± 0.52 and 3.27 ± 0.16 \log_{10} CFU/cm², respectively, with statically significant different (P < 0.05). Also there were statically significant different (P < 0.05) after bleeding and hands of worker. In addition the highest average prevalence was after chilling 94.4%, after evisceration 91.7 %, after defeathering 86.1%.

ملخص الاطروحة

اجريت الدراسة في الفترة ما بين يونيو ٢٠١٢ إلى يوليو ٢٠١٢، و كان العدد الكلي للعينات ٢١٦، جمعت من ستة مراحل مختلفة اثناء وبعد مرحلة الذبح بولاية الخرطوم. أظهرت النتائج المتحصل عليها وجود البكتيريا المعنية في عمليات الذبح المختلفة بفروق ذات دلالة معنوية بين هذه المراحل (نقاط التحكم الحرجة) ومواقع (الساق، الصدر والظهر) على التوالي، كانت النتيجة بعد مرحلتي التبريد ونزع الاحشاء $0,53 \pm 3,90$ في $1,06 \pm 4,35$ او $3,10 \pm 0,12$ CFU/cm² ($p < 0,05$) ، $0,51 \pm 3,42$ في $0,52 \pm 4,33$ و $0,16 \pm 3,27$ log₁₀CFU/cm² على التوالي ، ($p < 0,05$). أيضا وجدت فروق معنوية كبيرة بشكل ثابت ($P < 0,05$) بعد مرحلتي النزيف وأيدي العمال. وبالإضافة إلى ذلك كان اعلى متوسط بعد مرحلتي نزع الاحشاء و نطف الريش على التوالي $(91,7 - 86,1)\%$.

Table of contents

Subject	Page No.
Dedication	I
Acknowledgment	Ii
Abstract	Iii
ملخص اللغة العربية	Iv
Table of contents	V
list of tables	Viii
Introduction	X
Chapter one	1
literature review	1
1.1. The poultry industry	1
1.1.1. Sudan poultry meat industry	1
1.2. Salmonellosis	1
1.2.2. Identification of the agent	2
1.2.3. Treatment	3
1.2.4. Requirement for vaccine	3
1.3. Contamination from transport to processing plant	3
1.4. Contamination during processing	4
1.4.1. Slaughtering	4
1.4.2. Scalding	4
1.4.3. Defeathering	5
1.4.4. Evisceration	6
1.4.5. Washing	6
1.4.6. Chilling	7
1.5. Poultry meat hygiene	7
1.6. Inspection of live bird before slaughter(antimortum inspection	
1.7. Microbial inspection after slaughter and processing	8
1.8. Influence of processing poultry	9
1.8.1. Slaughter procedure	9
1.8.2. Bleeding	9
1.8.3. Scalding	9
1.8.4. Water for processing	10
1.8.5. Plucking or defeathering	10
1.8.6. Removal of head, oil glands and feet	10
1.8.7. Evisceration	11
1.8.8. Washing	11
1.8.9Chilling	11

1.9. Hazard analysis and critical control point	13
1.9.1. Principles of HACCP and implementation of HACCP plant	13
1.9.2. Advantage of HACCP	13
1.10. Microbial contamination	14
1.11. Fresh poultry carcasses	14
Chapter Two	
Materials and Methods	
2.1. Study area	15
2.1.1. Khartoum state	15
2.1.2. Study population	15
2.1.3. Study design	15
2.1.4. Sample collection	16
2.2. Microbiology	16
2.2.1. Peptone water	16
2.2.2. Nutrient broth	16
2.2.3. Blood agar	17
2.2.4. McConkey agar	17
2.2.5. deoxy chocolate agar	17
2.2.6. Nutrient agar	17
2.2.7. Biochemical test	17
2.2.7.1. Kligler iron agar	17
2.2.7.2. Simon citrate	17
2.2.7.3. Urase	18
2.2.7.4. Indol	18
2.2.8. Staining	8
2.2.8.1. Grams stain	18
2.3. Bacteriological count	18
2.4. Statistical analysis	19
2.5. Questionnaire analysis	19
3. Chapter three Results	20
4. Chapter four Discussion	22
References	25
Appendix	35

List of tables

Table NO	Contents	Page NO.
1	Total viable counts (\log_{10} CFU cm^{-2}) at different sites on carcasses at different operational points.	19
2	Biochemical reactions of <i>salmonella. paratyphiA</i>	20
3	The rate of <i>salmonella. spp.</i> Contaminated the carcasses at 6 processes stages (isolate by culturing).	22
4	Risk factors associated with the <i>salmonella</i> on Khartoum state.	24