

TABLE OF CONTENTS

CONTENT	Page
ACKNOWLEDGEMENTS	iv
ABSTRACT IN ENGLISH	vi
ABSTRACT IN THAI	viii
LIST OF TABLES	xi
LIST OF ILLUSTRATIONS	xii
ABBREVIATIONS AND SYMBOLS	xiii
1. INTRODUCTION AND OBJECTIVES	
1.1 Introduction	1
1.2 Objectives	3
2. LITERATURE REVIEW	
2.1 Background of <i>Salmonella</i>	4
2.1.1 History	4
2.1.2 Taxonomy	4
2.1.3 Morphology	6
2.1.4 Serotyping of <i>Salmonella</i>	7
2.2 Salmonellosis	9
2.2.1 Epidemiology	9
2.2.2 Public Health and Economic impacts	9
2.2.3 Antibiotic resistance	11
2.2.4 Salmonellosis in Human	12
2.2.4.1 Incidence	13
2.2.4.2 Transmission	13
2.3 <i>Salmonella</i> in chicken meat	15

2.3.1 Distribution and importance in foods	15
2.3.2 <i>Salmonella</i> Typhimurium and <i>Salmonella</i> Enteritidis in chicken meat	16
2.3.3 Studies of <i>Salmonella</i> in chicken meat in Vietnam and overseas	17
3. MATERIALS AND METHODS	
3.1 Study area and period	19
3.2 Sample selection	19
3.3 Sampling	20
3.4 Sample size	20
3.5 Laboratory methods	20
3.6 Information from the questionnaire survey	25
3.7 Data management and data analysis	26
4. RESULTS	
4.1 <i>Salmonella</i> isolation	27
4.2 Serogroups and serotypes	30
4.3 Results from the questionnaire	36
4.3.1 Shop level	36
4.3.2 Sample level	38
5. DISCUSSION AND CONCLUSIONS	
5.1 Discussion	41
5.2 Conclusions	45
REFERENCES	46
APPENDIXES	56
Appendix A	56
Appendix B	58
CURRICULUM VITAE	59

LIST OF TABLES

Table	Page
1 Species within the <i>Salmonella</i> genus	5
2 Antigen of some <i>Salmonella</i> serotypes	8
3 Prevalence of <i>Salmonella</i> in poultry and raw poultry products	18
4 Sampling frame	19
5 Kligler reactivity of <i>Salmonella</i>	23
6 List of factors	25
7 Proportion of <i>Salmonella</i> positive samples	28
8 Proportion of <i>Salmonella</i> positive samples by shop	29
9 Serogroups of <i>Salmonella</i> isolated from chicken meat	30
10 <i>Salmonella</i> serogroups distributed by markets and districts	32
11 Distribution of <i>Salmonella</i> serogroups by shops	33
12 Number of isolates in each serotype of <i>Salmonella</i> by districts and markets	35
13 Summary results of univariate analysis of potential risk factors for <i>Salmonella</i> contamination in chicken shops	37
14 Variables in final model of Multivariate analysis of risk factors associated with proportion of <i>Salmonella</i> contamination in shops	38
15 Summary results of the assessment of associations between sample prevalence of <i>Salmonella</i> with potential risk factors	39
16 Logistic regression of the risk factors associated with sample prevalence of <i>Salmonella</i>	40

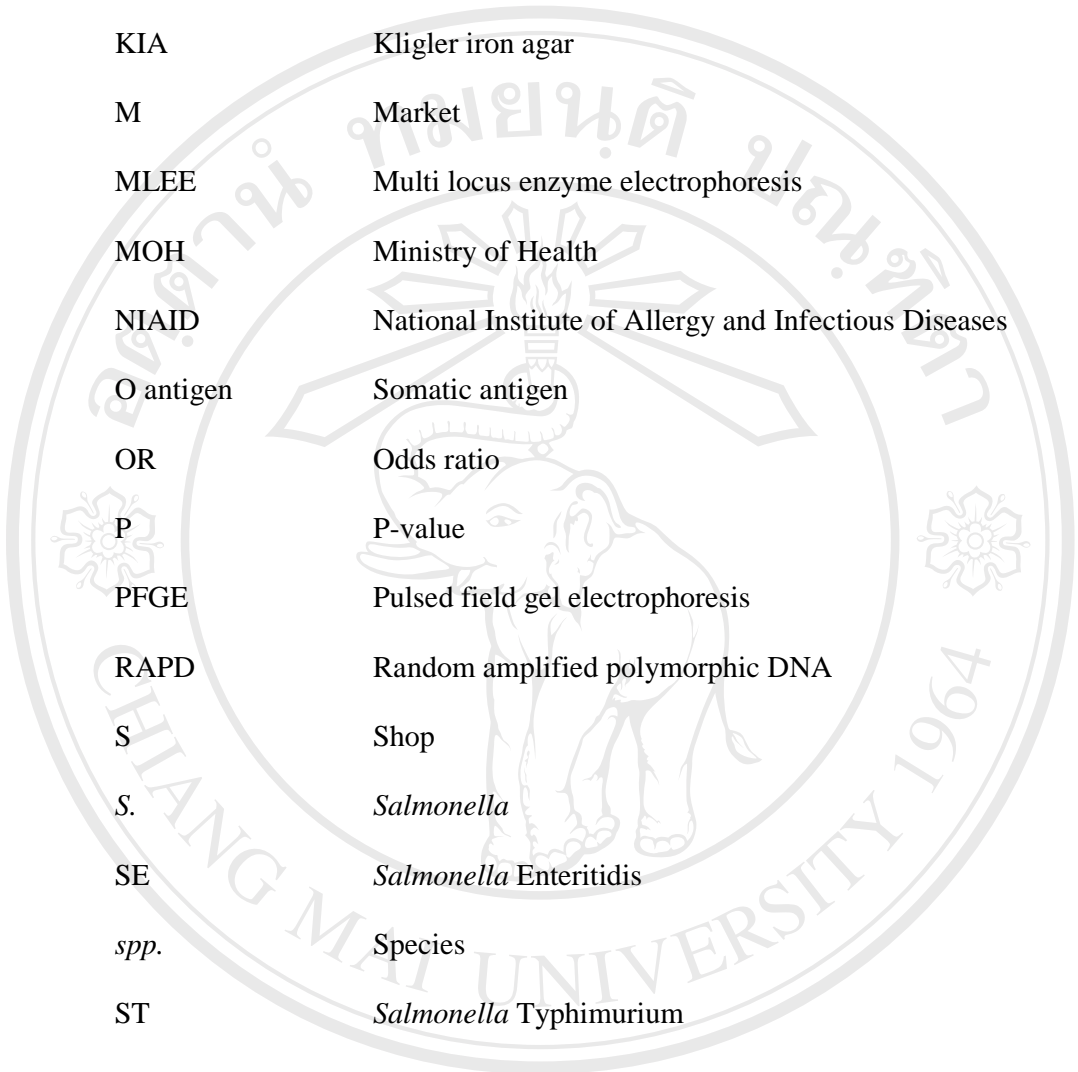
LIST OF ILLUSTRATIONS

Figure		Page
1	Flow of <i>Salmonella</i> chart conventional culture methods	22
2	Serological procedure	24

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved

ABBREVIATIONS AND SYMBOLS

-	Negative
+	Positive
°C	Degree Celsius
ACMSF	Advisory Committee on the Microbiological Safety of Foods
ACT	Australian Capital Territory Government Health
CDC	Center for Disease Control and Prevention
D	District
DIN	Deutsches Institut für Normung e. V.
DNA	Deoxyribonucleic Acid
EC	European Commission
et al	et alii
EU	European Union
FDA	Food and Drug Administration
FSRIO	Food Safety Research Information Office
G	Group
H antigen	Flagella antigen
ICMSF	International Commission on Microbiological Specifications for Foods
IFST	Institute of Food Science & Technology
ISO	International Standardization Organization



KIA	Kligler iron agar
M	Market
MLEE	Multi locus enzyme electrophoresis
MOH	Ministry of Health
NIAID	National Institute of Allergy and Infectious Diseases
O antigen	Somatic antigen
OR	Odds ratio
P	P-value
PFGE	Pulsed field gel electrophoresis
RAPD	Random amplified polymorphic DNA
S	Shop
S.	<i>Salmonella</i>
SE	<i>Salmonella</i> Enteritidis
<i>spp.</i>	Species
ST	<i>Salmonella</i> Typhimurium
UK	United Kingdom
US	United States
USDA	United States Department of Agriculture
Vi antigen	Capsular antigen
WHO	World Health Organization
XLT4	Xylose Lysine Turgitol 4 Agar
χ^2 -Test	Chi-square Test