

**PREVALENCE OF EXTENDED SPECTRUM BETA
LACTAMASE (ESBL) PRODUCING *Escherichia coli* IN
RETAIL BUFF MEAT SOLD IN BHARATPUR.**



A Mini Research

Submitted to:

Research Mangement Cell (RMC)

Balkumari College

Narayangarh, Chitwan

Submitted By

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July, 2020

DECLARATION

I hereby declare that this Mini research work entitled "**PREVALENCE OF EXTENDED SPECTRUM BETA LACTAMASE (ESBL) PRODUCING *Escherichia coli* IN RETAIL BUFF MEAT SOLD IN BHARATPUR.**" submitted to the Office of the Research Management Cell, Balkumari College, Narayangarh, Chitwan is my original work completed in the prescribed format under the supervision and guidance of **Dr. Bishnu Marasini, Head of Department of Biotechnology, National college, Kathmandu.**

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RECOMMENDATION SHEET

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entitled

**PREVALENCE OF EXTENDED SPECTRUM BETA
LACTAMASE (ESBL) PRODUCING *Escherichia coli* IN RETAIL
BUFF MEAT SOLD IN BHARATPUR.**

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**PREVALENCE OF EXTENDED SPECTRUM BETA
LACTAMASE (ESBL) PRODUCING *Escherichia coli* IN RETAIL
BUFF MEAT SOLD IN BHARATPUR.**

and found the mini research to be the original work of the research and written according to the prescribed format. We accept this mini research.

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ABSTRACT

Antimicrobial resistance is a major global public health problem. The use of antimicrobials in food animals is a public health concern because antimicrobial resistant (AMR) bacteria can emerge and be transmitted to humans through consumption and handling of foods of animal origin. Extended-spectrum cephalosporins (ESCs) are critically important antibiotics for humans and their use in animals poses a potential threat for public health. The purpose of this study was to investigate the prevalence of extended-spectrum β -lactamase (ESBL)-producing *Escherichia coli* in retail buff meats in Bharatpur, Nepal. Multidrug resistance (MDR) and ESBL producing *Escherichia coli* is also considered to be one of the major problems in the world which causes serious illness to people each year.

A total of 20 raw buff meat samples were collected from different retail shops of Bharatpur Metropolitan City, Nepal. Bacterial growth, identification, and antimicrobial susceptibility test were performed according to Clinical & Laboratory Standards Institute (CLSI) guidelines. Out of 20 meat sample, 15 samples showed the growth of *Escherichia coli* isolates. The prevalence rate was found to be 75%. All the isolates of *Escherichia coli* were found to be susceptible to Gentamicin and Amikacin whereas was isolates were mostly resistant to to Ampicillin (60%) following Imipenam (53%) and Levofloxacin (33%). Overall, 20% Multidrug-Resistant (MDR) isolate was found. The prevalence of ESBL producing *Escherichia coli* was 3 (20%). This study indicates antimicrobials resistant bacteria existing at an alarming rate in buff meat.

Keywords: Extended Spectrum Beta Lactamase, Multidrug Resistance, *Escherichia coli*

TABLE OF CONTENTS

	Page No.
Title page	i
Declaration sheet	ii
Recommendation	iii
Acceptance sheet	iv
Acknowledgement	v
Abstract	vi
Table of contents	vii-ix
List of tables	x
List of figures	xi
List of appendices	xii
List of abbreviations	xiii
CHAPTER I: INTRODUCTION AND OBJECTIVES	1-5
1.1 Background	1
1.2 Problem statement	4
1.3 Objectives	5
1.3.1 General Objective	5
1.3.2 Specific Objectives	5
1.4 Hypothesis	5
1.5 Significance of the study	5
CHAPTER II: LITERATURE REVIEW	6-14
2.1 Food borne illness	6
2.2 Contamination of meat	6
2.3 Pathogens in meat	6
2.4 <i>Escherichia coli</i>	7
2.4.1 Morphological and cultural characteristics	7
2.4.2 Virulence factor	8

2.4.3 Pathogenesis	8
2.5 Laboratory diagnosis of <i>Escherichia coli</i>	8
2.6 Antimicrobial resistance	9
2.6.1 Causes of spread of Antimicrobial Resistance	9
2.7 Multidrug Resistance	10
2.8 β -lactam antibiotics	10
2.8.1. General structure and function	10
2.8.2. β -lactamase inhibitors	10
2.8.3. Resistance to β -lactams	11
2.9 β -lactamases	11
2.9.1. Classification and nomenclature of β -lactamases	11
2.9.2. Structure and action of β -lactamases	12
2.10 Extended spectrum β -lactamase detection	12
2.10.1 Detection of ESBL by combined disc method	12
2.10.1.1 Screening of ESBL producers:	12
2.10.1.2 Phenotypic confirmatory tests for ESBL production:	13
2.10.2 ChromID ESBL screening agar plate	13
2.10.3 MIC-strip ESBL	13
2.10.4 Vitek2 ESBL test panel	13
2.10.5 Modified Double Disc Synergy Test	14
CHAPTER III: MATERIALS AND METHODS	15-17
3.1 Materials	15
3.2 Methodology	15
3.2.1 Study design	15
3.2.2 Sample plan and its collection	15
3.2.3 Study site	15
3.2.4 Study period	15
3.2.5 Sample size	15
3.2.6 Sample processing	16
3.3 Sample evaluation	16

3.3.1 Inclusion criteria	16
3.3.2 Exclusion criteria	16
3.4 Culture of specimen	16
3.4.1. Sample culture	16
3.4.2. Identification of Isolates	17
3.4.2.1. Identification of <i>Escherichia coli</i> isolates	17
3.5. Antibiotic susceptibility testing	17
3.6. ESBL screening criteria	17
3.7 Purity plate	17
CHAPTER IV: RESULTS	18-21
4.1 Proportions of <i>Escherichia coli</i> positive sample	18
4.2 Antimicrobial resistant pattern of isolates	19
4.3 Proportions of ESBL suspected among <i>Escherichia coli</i> isolates	20
4.4 Proportions of multidrug resistant <i>Escherichia coli</i> isolates	21
CHAPTER V: DISCUSSION	22
CHAPTER VI: CONCLUSION AND RECOMMENDATIONS	23
6.1 Conclusion	23
6.2 Recommendations	23
REFERENCES	24-28

LIST OF TABLES

Table 1: Proportions of ESBL suspected among <i>Escherichia coli</i> isolates.	19
Table 2: Proportions of multidrug resistant <i>Escherichia coli</i> isolates.	21

LIST OF FIGURES

Figure 1: Proportions of <i>Escherichia coli</i> positive sample	18
Figure 2: Proportions of ESBL suspected among <i>Escherichia coli</i> isolates	20

LIST OF APPENDICES

Appendix-A: List of equipments and materials used during the study	xiv
Appendix-B: Gram-staining procedure	xvi
Appendix-C: Methodology of biochemical tests used for identification of bacteria	xvii
Appendix-D: Biochemical test for identification of bacteria <i>E.coli</i>	xx
Appendix-E: Morphological and cultural characteristic of bacteria <i>E coli</i> .	xxi

ABBREVIATION

AMR	Antimicrobial resistance
BPW	Buffered Peptone Water
CDC	Center for Disease Control and Prevention
CFU	Colony Forming Unit
CLSI	Clinical Laboratory Standards Institute
E coli	Escherichia coli
ESBL	Extended Spectrum Beta Lactamase
FAO	Food and Agriculture Organization
GIT	Gastrointestinal Tract
HGT	Horizontal Gene Transfer
IMP	Imipenem
MDDST	Modified Double Disk Synergy Test
MDR	Multidrug Resistance
MR	Methyl Red
NA	Nutrient Agar
NB	Nutrient Broth
OXA	Oxacillinase
Spp	Species
VP	Voges Proskauer
WHO	World Health Organization
3GC	Third generation Cephalosporin