

**ANTIBIOTIC SUSCEPTIBILITY PATTERN OF SALMONELLA
FROM BLOOD OF SUSPECTED ENTERIC FEVER PATIENTS
ATTENDING PATAN HOSPITAL**

A

Dissertation

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Tribhuvan University**

**In Partial Fulfillment of the Requirements for the Award of the Degree
of
Master of Science in Microbiology**

By

Krishna Govinda Prajapati

**Central Department of Microbiology
Tribhuvan University
Kirtipur, Kathmandu
Nepal
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RECOMMENDATION

This is to certify that **Mr. Krishna Govinda Prajapati** has completed this dissertation work entitled “**Antibiotic Susceptibility Pattern of *Salmonella* from Blood of Suspected Enteric Fever Patients Attending Patan Hospital**” as a partial fulfillment of M.Sc. degree in Microbiology. To the best of our knowledge, this is his original research work and has not been submitted for award of any other degree.

Dr. Dwij Raj Bhatta, Ph.D.

Associate Professor

Central Department of Microbiology

Tribhuvan University

Kirtipur, Kathmandu

Dr. Sujan Vaidya

Pathologist

Pathology Department

Patan Hospital

Date:

Date:

CERTIFICATE OF APPROVAL

On the recommendation of Dr. Dwij Raj Bhatta, Associate Professor of Central Department of Microbiology, Tribhuvan University and Dr. Sujan Vaidya, Pathologist, Patan Hospital, the dissertation work of Mr. Krishna Govinda Prajapati entitled “**Antibiotic Susceptibility Pattern of *Salmonella* from Blood of Suspected Enteric Fever Patients Attending Patan Hospital**” has been approved for the examination and is submitted to Tribhuvan University in partial fulfillment of the requirements for Master's Degree of Science in Microbiology.

Dr. Dwij Raj Bhatta

Head of the Department

Central Department of Microbiology

Tribhuvan University, Kirtipur

Kathmandu, Nepal

Date:

BOARD OF EXAMINERS

Recommend by:

Dr. Dwij Raj Bhatta, Ph.D.
Supervisor

Dr. Sujan Vaidya
Supervisor

Approved by:

Dr. Dwij Raj Bhatta
Head of the Department

Examined by:

Mr. Keshab Parajuli
External Examiner

Mr. Dev Raj Joshi
Internal Examiner

Date:

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.....
Krishna Govinda Prajapati

Date:

ABSTRACT

In the present study blood samples were collected from 25,470 suspected of enteric fever patients who visited Patan Hospital during January 2007 to December 2008. The blood samples were cultured to isolate *Salmonella* using selective enrichment technique. *Salmonella* isolates were serotyped and their antibiotic sensitivity test was studied using modified Kirby-Bauer method recommended by Clinical and Laboratory Standards Institute.

In all the 25,470 blood samples, 3,131(12.29%) patients were culture positive and among the culture positive 1,640 (52.38%) were *Salmonella* isolates. In all the *Salmonella* isolates, 1135 (69.20%) were *Salmonella* Typhi, 503 (30.67%) *Salmonella* paratyphi A, 1 (0.06%) *Salmonella* Paratyphi B and 1 (0.06%) *Salmonella* Paratyphi C. *Salmonella* Typhi were most prevalent causative organism of enteric fever. High prevalence of *Salmonella* was found during summer season.

Salmonella Typhi (N=1,135) were found to be sensitive to Cephalexin 1,128 (99.38%), Gentamicin 1,121 (98.77%), Chloramphenicol 1,120 (98.68%), Ofloxacin 1,117 (98.41%), Amoxicillin 1,113 (98.06%), Cotrimoxazole 1,107 (97.53%), Ciprofloxacin 1,063(93.66%) and Nalidixic acid 359 (31.63%). In all the *Salmonella* Paratyphi A (N=503) was found sensitive to Gentamicin 501 (99.60%), Cephalexin 499 (99.20%), Amoxicillin 497 (98.81%) and Cotrimoxazole 496 (98.61%) and resistant to Nalidixic acid 477 (94.83%) and Ciprofloxacin 38 (7.55%). *Salmonella* Paratyphi B was sensitive to Amoxicillin, Ciprofloxacin, Cotrimoxazole, Chloramphenicol, Gentamicin Cephalexin, Nalidixic acid and Ofloxacin. *Salmonella* Paratyphi C was resistant to Gentamicin, Chloramphenicol and Cotrimoxazole and sensitive to Amoxicillin, Nalidixic acid, Cephalexin and Ofloxacin. In all the Nalidixic acid resistant *Salmonella* isolates (N=1,251), 55(4.39%) isolates were resistant to Ciprofloxacin.

Key words: Enteric fever, *Salmonella*, antibiotic

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LIST OF ABBREVIATIONS

ACCo	:	Ampicillin, Chloramphenicol and Cotrimoxazole
ATCC	:	American Type Culture Collection
BA	:	Blood Agar
BHI	:	Brain Heart Infusion
CFR	:	Case Fatality Rate
CFU	:	Colony Forming Unit
CLSI	:	Clinical and Laboratory Standard Institute
D/W	:	Distilled Water
ESBL	:	Extended Spectrum of Beta Lactamase
LPS	:	Lipopolysaccharide
MA	:	Mac-Conkey Agar
MDR	:	Multi-Drug Resistant
MDRST	:	Multi-Drug Resistant <i>Salmonella typhi</i>
MHA	:	Mueller Hinton Agar
MHB	:	Mueller Hinton Broth
MIC	:	Minimum Inhibitory Concentration
NA	:	Nutrient Agar
NARST	:	Nalidixic Acid Resistant <i>Salmonella typhi</i>
PMN	:	Polymrphonuclear Leucocytes
SPS	:	Sodium Plyanethol Sulphonate
TSI	:	Triple Sugar Iron
WHO	:	World Health Organization

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