

**SOLATION, IDENTIFICATION AND ANTIBIOTIC  
SENSITIVITY TESTING OF *SALMONELLA* SEROVARS  
FROM ENTERIC FEVER SUSPECTED PATIENTS  
VISITING BIR HOSPITAL**

**A  
DISSERTATION  
SUBMITTED TO THE CENTRAL DEPARTMENT OF MICROBIOLOGY  
TRIBHUVAN UNIVERSITY**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS THE AWARD OF  
THE DEGREE OF MASTER OF SCIENCE IN MICROBIOLOGY  
(MEDICAL)**

**BY  
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## **RECOMMENDATION**

This is to certify that Miss **Manita Aryal** has completed this dissertation work entitled **“ISOLATION, IDENTIFICATION AND ANTIBIOTIC SENSITIVITY TESTING OF *SALMONELLA* SEROVARS FROM ENTERIC FEVER SUSPECTED PATIENTS VISITING BIR HOSPITAL”** as a partial fulfillment of M. Sc. degree in Microbiology under our supervision. To the best of our knowledge this is an original research work of her and this work has not been submitted for award of any other degree.

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## ABSTRACT

The present study was carried out at Bir Hospital, Kathmandu from June 2008 to August 2008 to study the Widal test and the antibiotic sensitivity pattern of the isolates. All together 970 blood samples were collected from patients clinically suspected of enteric fever, 503 blood samples were tested for Widal test and 48 blood samples were tested for Enterocheck-Wb. All blood samples were cultured in 1% bile broth and sub cultured in blood agar and MacConkey agar plates. Of 503 blood samples, 49.6% (247) had titer less than 1:80 in TO, TH, AH and BH. Even in culture proven cases nearly half of the samples had titer less than 1:80 in TO, TH, AH and BH. High titer of 1:320 was observed for culture proven cases. Of 48 blood samples tested for Enterocheck-Wb, 58% (28) were positive of which 14 was culture positive for *Salmonella* serovars. No blood samples were culture positive for *Salmonella* Typhi but negative on Enterocheck-Wb. Of 970 blood samples, 631 were male. 68 (10%) of male and 29 (8.6%) of female were infected. There was no significant association of enteric fever with gender of patients ( $p=0.27$ ). Of 970 blood samples, 104 (10.72%) were culture positive, 97 (10%) were *Salmonella* serovars isolated after 7 days of incubation period. More than 90% of isolates were resistant to Ampicillin. *Salmonella* Paratyphi A was 100% susceptible to Ceftriaxone, Ciprofloxacin, Ofloxacin and Chloramphenicol. *Salmonella* Typhi was 98% sensitive to Ceftriaxone, 96% to Ofloxacin and Chloramphenicol, 92.4% to Ciprofloxacin and 88.5% to Cotrimoxazole. Of total *Salmonella* Typhi isolated 2 (3.9%) were MDR as well as Nalidixic acid resistant and 3 (5.76%) were resistant to Ciprofloxacin as well as Nalidixic acid. Since the antibody develops after second week of infection and Widal test can be diagnostic if interpreted considering the base line titer as well as clinical condition of the patient. Enterocheck-Wb is new diagnostic kit for early detection of typhoid fever. Antibiotic resistance problems are growing rapidly and threaten our ability to treat the infection.

**Key words: Enteric fever, Antibigrams, Multidrug resistance (MDR), Widal test, Enterocheck-wb.**

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## LIST OF ABBREVIATIONS

AH	Titer of <i>Salmonella</i> Paratyphi A flagellar antigen
aPTT	activated Partial Thromboplastin Time
BH	Titer of <i>Salmonella</i> Paratyphi B flagellar antigen
CD	Complementary Determining
CFTR	Cystic Fibrosis Trans-membrane conductance Receptor
CLSI	Chemical Laboratory and Standard Institute
DIC	Disseminated Intravascular Coagulation
EIA	Enzyme Immunoassay
ESR	Erythrocyte Sedimentation Rate
ELISA	Enzyme Linked Immuno Sorbent Assay
HIV/AIDS	Immuno Deficiency Virus/ Acquired Immuno Deficiency Syndrome
IAP	Indian Association of Pediatrics
IL	Interleukine
KUB	Kidneys, Ureters, and Bladder
LPS	Lipopolysaccharide
MDR	Multi Drug Resistant
MRI	Magnetic Resonance Image
NaMDR	Nalidixic acid Multi Drug Resistant
OMP	Outer Membrane Protein
PAMS	Pathogen Associated Molecular Patterns
PCR	Polymerase Chain Reaction
PT	Prothrombin Time
QT	
TLR	Toll like Receptor
TO	Titer of <i>Salmonella</i> Typhi lipopolysaccharide antigen
TH	Titer of <i>Salmonella</i> Typhi flagellar antigen
TMP-SMZ	Trimethoprim- Sulphomethoxazole
WHO	World Health Organization

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