

**COMPARISON OF ZIEHL-NEELSEN AND FLUORESCENCE MICROSCOPY
FOR DIAGNOSIS OF TUBERCULOSIS**

A
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ABSTRACT

Tuberculosis (TB) is a serious threat to human health and is a global concern. Nepal is one of the endemic countries to TB and hence early detection of cases can be milestone to limit the spread of disease. A comparative study was conducted in Microbiology Laboratory, Bir Hospital to develop improved strategy for laboratory diagnosis of Acid Fast Bacilli (AFB) in suspected TB patients. A total of 2,592 different specimens (pulmonary 2,492, extra pulmonary 100) from 1,019 suspects visiting Bir Hospital, were included in the study. ZN and Fluorescence microscopy methods were applied in each specimen for acid fast staining. The total positive yield from the 2,592 specimens was slightly higher by Fluorescence microscopy 160 (6.17%) as against 140 (5.4%) positive by the Z-N microscopy. The higher proportion of positive results seen in fluorescence microscopy than in ZN microscopy was found statistically significant difference ($p < 0.05$).

Among suspects of 2,492 different specimens for pulmonary tuberculosis, 155 were found AFB positive by either of the method. Out of 155 positive cases of TB, 133 cases were found to be positive by ZN microscopy and 153 by Fluorescence microscopy. Whereas among 100 suspects of extra pulmonary tuberculosis, both ZN microscopy and Fluorescence microscopy gave same results (i.e. 7 positive cases).

It was found that the sensitivity of Fluorescence microscopy greatly improves the diagnosis of TB. Furthermore, this method is also simple, easy and fast for low income laboratories with high sample load.

Keywords: AFB, ZN microscopy, Fluorescence microscopy, Tuberculosis, Diagnosis.

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ABBREVIATIONS

AFB	Acid Fast Bacilli
AO	Auramine O
AP	Auramine Phenol
AR	Auramine Rodamine
BCG	Bacillus Calmette Guerin
CD	Cluster of Differentiation
CMI	Cell Mediated Immunity
CR	complement receptor
CSF	Cerebrospinal Fluid
DNA	Deoxyribonucleic Acid
DOTS	Directly Observed Treatment Short course
DST	Drug Susceptibility Test
EIA	Enzyme Immune Assay
EPTB	Extra Pulmonary Tuberculosis
FM	Fluorescence Microscopy
FNA	Fine Needle Aspiration
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
IFN	Interferon
IgM	Immunoglobulin M
IL	Interleukin
IUATLD	International Union against Tuberculosis and Lung Disease
LAM	Lipoarabinomannan

MC	Modified Cold
MDR	Multi Drug Resistance
MDT	Multi Drug Therapy
ML flow test	<i>M. leprae</i> flow test
MTB	Miliary Tuberculosis
NTC	National Tuberculosis Centre
OPD	Out Patient Department
PCR	Polymerase Chain Reaction
PMNs	Polymorphonuclear Neutrophils
PPD	Purified Protein Derivatives
PTB	Pulmonary Tuberculosis
QC	Quality Control
RNA	Ribonucleic Acid
STC	SAARC Tuberculosis Centre
TB	Tuberculosis
Th1	T-helper cell 1
TNF	Tumor Necrotizing Factor
UV	Ultraviolet
WHO	World Health Organization
ZN	Ziehl-Neelsen

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