

2009

- VIJAY KUMAR PATHAK

MALARIA SITUATION IN SOMDIHA V.D.C OF KAPILVASTU DISTRICT

**MALARIA SITUATION IN SOMDIHA V.D.C
OF KAPILVASTU DISTRICT**

A DISSERTATION

**SUBMITTED FOR THE PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE MASTER'S DEGREE OF SCIENCE**

IN

ZOOLOGY (PARASITOLOGY)

BY

VIJAY KUMAR PATHAK

ROLL NO.: 517

BATCH NO.: 2060/061

T.U. REGD. NO.: 5-3-28-137-2006

TO

**CENTRAL DEPARTMENT OF ZOOLOGY
INSTITUTE OF SCIENCE AND TECHNOLOGY
TRIBHUVAN UNIVERSITY
KIRTIPUR, KATHMANDU
NEPAL**

SEPTEMBER, 2009



Ref. No.:

TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF ZOOLOGY
KIRTIPUR, KATHMANDU, NEPAL

DECLARATION

I hereby declare that the work presented in this thesis has been done by myself and has not been submitted elsewhere for the award of any degree. All sources of the information have been specifically acknowledged by reference to the authors or institutions.

Signature

Vijay Kumar Pathak

Date: _____



TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF ZOOLOGY
KIRTIPUR, KATHMANDU, NEPAL

Ref. No.:

RECOMMENDATION

This is to certify that Mr. Vijay Kumar Pathak has successfully completed the dissertation work entitled "**Malaria Situation in Somdiha V.D.C. of Kapilvastu District**" under my supervision in partial fulfillment of the requirements for Master's Degree of Science in Zoology with **Parasitology** as a special paper. His work is an original one.

Date: _____

.....

Supervisor

Prof. Dr. Ranjana Gupta

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu



TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF ZOOLOGY
KIRTIPUR, KATHMANDU, NEPAL

Ref. No.

LETTER OF APPROVAL

On the recommendation of supervisor Prof. Dr. Ranjana Gupta, this dissertation work entitled "**Malaria Situation in Somdiha V.D.C. of Kapilvastu District**" of Mr. Vijaya Kumar Pathak is approved for the examination and is submitted to Central Department of Zoology, Tribhuvan University in partial fulfillment of the requirements for the degree of Master of Science in Zoology with **Parasitology** as a special paper.

Date: _____

.....

Prof. Dr. A.S. Tamrakar
Head of Department
Central Department of Zoology
Tribhuvan University
Kirtipur, Kathmandu
Nepal



TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF ZOOLOGY
KIRTIPUR, KATHMANDU, NEPAL

Ref. No.

CERTIFICATE OF APPROVAL

Mr. Vijay Kumar Pathak, a student of Zoology with Parasitology as a special paper, has successfully completed his dissertation work entitled "**Malaria Situation in Somdiha V.D.C of Kapilvastu District**" under the guidance of Prof. Dr. Ranjana Gupta, this dissertation work has been approved.

Expert Committee

Prof. Dr. A.S. Tamrakar

Head

Central Department of Zoology

.....

Prof. Dr. Ranjana Gupta

Supervisor

Central Department of Zoology

.....

External Examiner

.....

Internal Examiner

.....

Date of Examination: _____

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and deep respect to my supervisor Prof. Dr. Ranjana Gupta, Central Department of Zoology, T.U. who not only spent many hours in my dissertation work but also encouraged, suggested and guided me through out the completion of this work.

I am highly grateful to Prof. Dr. A.S. Tamrakar, Head of Central Department of Zoology for providing the necessary facilities required for this. My sincere thanks go to all staff of Zoology Department particularly Mr. Janak Raj Subedi and Mr. Pitambar Dhakal and Mr. Ashok Bam.

My special thanks go to Mr. D.P. Shukla and Mr. Santosh Katuwal, Principal and Vice Principal of National English Boarding School and Vidhyanevas Yadav (M.L.T.) who helped me in convincing the people and providing data.

My thanks go to my brother Mr. Jatashankar Upadhyaya (Food inspector), Mr. Santosh Pathak (M.A.B.M.), S.P. Thakur (Zonal project manager) for their enthusiastic help by giving suggestion.

I would like to express my thanks to Mr. Migmar Galbo Dong and Dipesh Pokharel students of computer of their excellent computer typing and printing in time.

My thanks to all my classmates and friends especially Binaya Kumar Chatuvedi, Ranjan Karki, Yogendra Bahadur Mahat and Girendra Pandey for their kind help and encouragement in the research work.

Finally, I am grateful to my parents and specially to my brother Anil Kumar Pathak who encouraged me with the financial support without which I would not have completed this work.

Vijay Kumar Pathak

Exam Roll No. 517

Batch 060/61

T.U. Regd. No. 5-3-28-137-2006

ABSTRACT

This study entitled "**Malaria Situation in Somdiha V.D.C of Kapilvastu District**" was started with an aim to explore malaria cases and attitudes and behaviours of the local people of the study area regarding malaria. A total of 290 blood samples were collected in the month of April-September 2008 and examined. Out of the total samples examined, **18** were detected positive for malaria parasite; all cases were of *P. vivax*. Regarding sex-wise distribution of malaria parasites, 14 cases (8.05%) were found among males and 4 (3.45%) among females. Age-wise distribution of malaria infection revealed the highest positivity (10.76%) in the age-group 21-30 years followed by 6.25% in the age group 11-20 years and no case in the age group 10 years and above 51 years. According to ward-wise distribution of malaria infection the highest cases was recorded in ward-No 7(13.95%), lowest cases in ward-No 4(2.32%) and no positivity in ward-No 1, 2, 5 and 6. The prevalence of malaria infection was found be the highest among people who do not use bed-nets and are not aware of the disease. During the study period it had been noted that people often use smoke of dung cake, khar, leaf of Sekhuwa and black beery to avoid mosquito biting. Study suggests that public awareness programme and distribution of insecticide impregnated mosquito nets to the key group of people is a current requirement to minimize the probable malaria cases.

CONTENTS

	<i>Page No.</i>
Declaration	(i)
Recommendation	(ii)
Letter of Approval	(iii)
Certificate of Approval	(iv)
Acknowledgements	(v)
Table of Contents	(vi)
List of Tables	(vii)
List of Graphs, Maps and Photos	(viii)
Abbreviations	(ix)
Abstract	(x)
I INTRODUCTION	1
II OBJECTIVES	5
2.1 General	5
2.2 Specific	5
III LITERATURE REVIEW	6
3.1 Historical background	6
3.2 Epidemiology	8
3.3 Global Situation of Malaria	9
3.4 Malaria Situation in Nepal	13
IV MATERIALS & METHODS	17
4.1 Materials required	17
4.2 Method	17
Study area	17
Study population	17
Research Design	18
Specimen collection	20
Sample processing	20
a. Preparation of thick and thin films on the same slide	20
b. Staining of the blood smears	21
Questionnaires	21
V RESULTS	23
5. Result of blood examination for malaria	23
5.1 General prevalence of the malaria parasite	23
5.2 Species-wise prevalence of malaria	24
5.3 Sex-wise prevalence of malaria	25
5.4 Age- wise prevalence of malaria	26
5.5 Distribution of malaria during different months	27
5.6 Ward- wise prevalence of malaria	28
5.7 Use of bed-nets (for preventive measures to malaria) and malaria positivity in Somdiha VDC	29
5.8 Literacy condition and malaria positivity	30
VI DISCUSSIONS	32
VII CONCLUSION	34
VIII RECOMMENDATIONS	35

REFERENCES

LIST OF TABLES

	Page No.
1. Malaria situation in Nepal from 1995-2003	16
2. Species-wise prevalence of Malaria	24
3. Sex-wise prevalence of Malaria	25
4. Age-wise prevalence of Malaria	26
5. Month-wise prevalence of Malaria	27
6. Ward-wise prevalence of Malaria	28
7. Use of Bed-nets and Malaria positivity	29
8. Literacy condition	30

LIST OF GRAPHS

	Page No.
1. Prevalence of Malaria	23
2. Sex-wise prevalence of Malaria	25
3. Age-wise prevalence of Malaria	26
4. Month-wise prevalence of Malaria	27
5. Ward-wise prevalence of Malaria	28
6. Use of Bed-nets and Malaria positivity	29
7. Literacy Condition and Malaria Positivity	30

LIST OF MAPS

	Page No.
1. Global distribution of Malaria	10
2. Distribution of Malaria in Nepal	14
3. Map of Kapilvastu district	19

LIST OF PHOTOS

	Page No.
1. Doctor examining a patient	22
2. Microscopic examination of the blood film for malarial parasites	22
3. Schizont of <i>P.vivax</i> in thick film	31
4. Trophozoites of <i>P.vivax</i> in thick film	31

ABBREVIATIONS

DDT	: Dichloro Diphenyl Trichloroethane
DoHS	: Department of Health Services
EDCD	: Epidemiology and Disease Control Department
GDP	: Gross Domestic Product
GMCS	: Global Malaria Control Strategy
IgG	: Immunoglobulin
IL	: Interleukin
~ l	: Micro litre
MoH	: Ministry Of Health
P.f.	: <i>Plasmodium falciparum</i>
P.o	: <i>Plasmodium ovale</i>
P.v.	: <i>Plasmodium vivax</i>
RBM	: Roll Back Malaria
UNDP	: United Nation Development Program
UNICEF	: United Nation International Children Emergency Fund
VDC	: Village Development Committee
WHO	: World Health Organization