EPIDEMIO-ENTOMOLOGICAL STUDY OF JAPANESE ENCEPHALITIS IN BHELUKHEL, BODE AND TATHALI OF BHAKTAPUR DISTRICT

Monica Shrestha
T.U. Registration No. 5-1-20-8-2004
T.U. Examination Roll No. 13095
Batch: 2066/2067

A thesis submitted in Partial Fulfillment of the requirements for the award of the degree of Master of Science in Zoology with special paper Parasitology

Submitted to

Central Department of Zoology
Institute of Science and Technology
Tribhuvan University
Kirtipur, Kathmandu
Nepal

April, 2014

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RECOMMENDATIONS

This is to recommend that the thesis entitled "**EPIDEMIO-ENTOMOLOGICAL STUDY OF JAPANESE ENCEPHALITIS IN BHELUKHEL, BODE AND TATHALI OF BHAKTAPUR DISTRICT**'' has been carried out by Monica Shrestha for the partial fulfillment of Master's Degree of Science in Zoology with special paper Parasitology. This is her original work and has been carried out under our supervision. To the best of our knowledge, this thesis work has not been submitted for any other degree in any institutions.

……	……..
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Central Department of Zoology	Natural History Museum
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Date:…….

CERTIFICATE OF ACCEPTANCE

This thesis work submitted by Monica Shrestha entitled "**EPIDEMIO-ENTOMOLOGICAL STUDY OF JAPANESE ENCEPHALITIS IN BHELUKHEL, BODE AND TATHALI OF BHAKTAPUR DISTRICT**'' has been accepted as a partial fulfillment for the requirements of Master's Degree of Science in Zoology with special paper **Parasitology**.

EVALUATION COMMITTEE

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Prof. Dr. Ranjana Gupta

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External Examiner Internal Examiner

Date of Examination: ……..

LETTER OF APPROVAL

On the recommendation of supervisor this thesis submitted by Monica Shrestha entitled "**EPIDEMIO-ENTOMOLOGICAL STUDY OF JAPANESE ENCEPHALITIS IN BHELUKHEL, BODE AND TATHALI OF BHAKTAPUR DISTRICT"** is approved for the examination and submitted to the Tribhuvan University in partial fulfillment of the requirements for Master's Degree of Science in Zoology with special paper Parasitology.

Date…….

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Prof. Dr. Ranjana Gupta

Head of Department

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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 information have been specifically acknowledged by reference to the authors and institutions.

Date…….. ……..

Monica Shrestha

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Date: ..... ……

Monica Shrestha

ABSTRACT

The present study, aimed to identify KAP of community members in relation to JE and its vector abundance in Tathali, Bode and Bhelukhel of Bhaktapur district was conducted during July 2012 to December 2012. KAP study was conducted through structured questionnaire among the 300 respondents of the study area in order to determine the current state of Knowledge, Attitude and Practices of the people regarding JE prevention and an entomological study was carried out to study species composition, vector abundance and seasonal prevalence of mosquitoes by means of dark activated rechargeable CDC light trap. The mean age of the participants was 31, 32 and 31 years with a standard deviation of 1.43, 1.15 and 1.30 in Tathali, Bode and Bhelukhel respectively. Radio and Television was the most common source of information within the community. All the respondents who participated in this study had low level of knowledge. The level of knowledge on JE transmission among the respondents of Tathali, Bode and Bhelukhel were 89%, 58% and 82% with mean 1.4, 8.1 and 4.23 and S.D. 0.54, 0.73 and 0.30 respectively and 52%, 67% and 64% respondents of respective sites had fair level of practice towards JE prevention with mean 4.35, 4.67 and 4.23 and S.D. 0.67, 0.57 and 0.56. Significant associations were not found in the relationship of JE prevention practices with age, gender, education and level of knowledge and attitude ($p>0.005$). In an entomological survey, total eleven species of *Culex* mosquitoes were recorded namely *Cx. tritaeniorhynchus, Cx. fuscocephala, Cx. gelidus, Cx. vishnui, Cx. pseudovishnui, , Cx. bitaeniorhynchus Cx. quinquefasciatus, Cx. edwardsi, Cx. hutchnsoni, Cx. whitei and Cx. whitmorei*. Distribution of *Culex* species was abundant in July and August. *Cx. quinquefasciatus* was recorded to be the most dominant species in all the three sites. The principal JE vector *Cx. tritaeniorhynchus* was collected in higher number during August from Tathali and Bode site and during July from Bhelukhel site. Thus can be assumed the higher possibility of JE transmission in July and August. No significant variation was observed in vector abundance in three study sites in six different months. The results of this study showed the importance of public awareness programs in order to increase the knowledge level towards JE.

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LIST OF ABBREVIATIONS

Abbreviated form	Details of abbreviations
AES	Acute encephalitis syndrome
Cx.	*Culex*
CDC	Centre for Disease Control and Prevention
CDZ/TU	Central Department of Zoology / Tribhuvan University
CDR	Central Development Region
CFR	Case fatality rate
CI	Case incidence
CMI	Cell mediated immunity
CNS	Central nervous system
CSF	Cerebrospinal fluid
DALY	Disability Adjusted Life Years
DNA	Deoxyribonucleic acid
DoHS	Department of Health Services
EDCD	Epidemiology and Disease Control Division
EDR	Eastern Development Region
EHP	Environmental Health Project
ELISA	Enzyme Linked Immunosorbent Assay
FWDR	Far-western Development Region
HI	Haemagglutination inhibition
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IPD	Immunization preventable diseases
JE	Japanese encephalitis
JEV	Japanese encephalitis vector
JEV	Japanese encephalitis virus
KA	Kala azar
KAP	Knowledge Attitude and Practice
MAC-ELISA	IgM antibody capture ELISA
MoHP	Ministry of Health and Population
MVE	Murray valley encephalitis
MWDR	Mid-western Development Region

NZFHRC	National Zoonotic Food Hygiene and Research Center
PHK	Primary Hamster Kidney
RNA	Ribonucleic acid
SEA	South East Asia
SLE	St. Louis encephalitis
TUTH	Tribhuvan University Teaching Hospital
UNESCO	United Nations Educational, Scientific and Cultural Organization
VBDs	Vector-borne diseases
VDC	Village Development Committee
WDR	Western Development Region
WHO	World Health Organization
WNV	West Nile virus