STUDY OF BLACKFLY (Diptera: Simuliidae) FAUNA IN THE SHIVAPURI NATIONAL PARK STREAM, KATHMANDU VALLEY (NEPAL)

Dissertation

Submitted in partial fulfillment

For Master's Degree in Zoology (special paper Entomology)

by

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LETTER OF RECOMMENDATION

It is my pleasure to mention here that Miss Suchitra Shrestha has completed her dissertation work entitled "**Study of blackfly (Diptera: Simuliidae) fauna in the Shivapuri National Park stream, Kathmandu valley (Nepal)**" under my supervision. This is the candidate's original work aiming to fulfill informations on blackfly of Shivapuri National Park. To the best of my knowledge, her work has not been submitted in any publications and for any other degree.

I recommend for the acceptance of this dissertation in partial fulfillment of Master's Degree in Zoology.

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Prof. Dr. Vasanta Kumar Thapa

Supervisor

Date: ……..

LETTER OF APPROVAL

On the recommendation of supervisor Prof. Dr. Vasanta Kumar Thapa, this dissertation work of Miss Suchitra Shrestha has been accepted as a partial fulfillment of Master's Degree in Zoology of IOST, T.U.

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Date: ……..

CERTIFICATE OF APPROVAL

The dissertation submitted by Miss Suchitra Shrestha entitled "**Study of blackfly (Diptera: Simuliidae) fauna in the Shivapuri National Park stream, Kathmandu valley (Nepal)**" has been accepted as a partial fulfillment for the Master's Degree in Zoology of IOST, T.U.

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ABSTRACT

This dissertation work is based on the study of larval and pupal forms of blackflies in the stream of Shivapuri National Park and carried out from October, 2007 to June, 2008. A total of 1860 larvae grouped to five species i.e. *Simulium (Simulium)* sp., *S. (Nevermannia) feuerborni* gr., *S. (N.) vernum* gr., *S. (Gomphostilbia)* sp. and *S. (Montisimulium)* sp., 301 pupae categorized to 10 species i.e. *S. (G.)* sp.1, *ceylonicum* gr., *S. (G.) gombakense*, *S. (N.)* sp.1, *feureborni* gr., *S. (N.)* sp.2, *feureborni* gr., *S. (N.)* sp.3, *vernum* gr., *S. (S.)* sp.1, *vareigatum* gr., *S. (S.)* sp.2, *multistriatum* gr., *S. (S.)* sp.3, *tuberosum* gr., *S. (M.)* sp.1, *S. (M.)* sp.2 and 8 adults of *S. (S.) indicum* under four subgenera *Simulium*, *Nevermannia*, *Gomphostilbia* and *Montisimulium* were collected from three different sites at the altitude of 1700m, 1600m, and 1500m respectively. Among these 11 species, *S. (G.) gombakense*, *S. (N.)* sp.1 *feureborni* gr., *S. (N.)* sp.2 *feureborni* gr., *S. (N.)* sp.3 *vernum* gr., *S. (S.)* sp.3 *tuberosum* gr., *S. (M.)* sp.1 and *S. (M.)* sp.2 are new records to Nepal. Present study revealed that, blackflies fauna were found most diverse in Site I (H' = 1.16). Similarly, Site II (H'= 0.82) and Site III (H'= 0.77) on the basis of larvae, whereas diversity of blackflies were found most diverse in Site III (H'= 1.31), Site II (H'= 1.03), Site I (H'= 0.32) on the basis of pupae. Hence altitudinal variation was remarkable for blackflies fauna (based on pupae and larvae observed). March, April and May appeared to be the most suitable months for the study on blackflies. Pupae and larvae of Site I and Site III showed significant relation with temperature and dissolved oxygen while pupae and larvae of Site II were not affected by temperature and dissolved oxygen.

CONTENTS

LIST OF ACRONYMS

ShNP	: Shivapuri National Park
NaOH	: Sodium hydroxide
KOH	: Potassium hydroxide
DO	: Dissolved oxygen
BOD	: Biological oxygen demand
KI	: Potassium iodide
MnSO4	: Manganous sulphate
cm	: Centimeter
m	: Meter
sec	: Second
ml	: Millilitre
mg/L	: Milligram per litre
H'	: Species Diversity
r	: Correlation coefficient
S.	: *Simulium*
G.	: *Gomphostilbia*
N.	: *Nevermannia*
M.	: *Montisimulium*
sp.	: Species
gr.	: Group
Oct	: October
Nov	: November
Dec	: December
Jan	: January
Feb	: February
Mar	: March
Apr	: April
Jun	: June
max.	: Maximum
no.	: Number

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