

**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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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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CERTIFICATE OF APPROVAL

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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) feureborni* 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

| | |
|--|-----------|
| Letter of Recommendation | i |
| Letter of Approval | ii |
| Certificate of Approval | iii |
| Acknowledgement | iv |
| Abstract | vi |
| Content | vii |
| List of Acronyms | ix |
| List of Tables | x |
| List of Figures | xi |
| CHAPTER I | 1 |
| 1.1 Introduction | 1 |
| 1.2 Objectives | 2 |
| 1.3 Limitations | 2 |
| CHAPTER II | 3 |
| 2.1 Literature Review | 3 |
| 2.1.1 In the of Context SAARC Countries Including Nepal | 3 |
| 2.1.2 In the Global Context | 3 |
| CHAPTER III | 6 |
| 3.1 Study Area | 6 |
| 3.2 Site Selection | 6 |
| CHAPTER IV | 8 |
| 4.1 Materials and Methods | 8 |
| 4.1.1 Materials | 8 |
| 4.1.2 Methods | 8 |
| 4.1.3 Statistical analysis | 11 |
| CHAPTER V | 13 |
| 5.1 Keys for Identification | 13 |
| 5.1.1 Keys to subgenera of <i>Simulium</i> | 13 |
| CHAPTER VI | 17 |
| 6.1. Results | 17 |
| 6.1.1 Distribution and abundance of blackflies during the study period | 17 |
| 6.1.2 Monthly variation in distribution of blackflies in different sites | 23 |
| 6.1.3 Altitudinal distribution pattern of blackflies | 25 |
| 6.1.4. To assess the pupae and larvae with the physico-chemical parameter of water | 27 |
| CHAPTER VI | 29 |
| 6.1 Discussion | 29 |
| CHAPTER VII | 33 |
| 7.1 Conclusion | 33 |

| | |
|---------------------|-----------|
| CHAPTER VIII | 34 |
| 8.1 Recommendation | 34 |

| | |
|-------------------|-----------|
| CHAPTER IX | 35 |
| References | 35 |

Annex 1

Annex 2

Plates

- i. Larva of *Simulium* (*Simulium*) sp.
- ii. Larva of *S.* (*Gomphostilbia*) sp.
- iii. Larva of *S.* (*Montisimulium*) sp.
- iv. Larva of *S.* (*Nevermannia*) *vernum* gr.
- v. Larvae of *S.* (*N.*) *feuerborni* gr.
- vi. Mass of larvae attached on the substratum
- vii. Pupa of *S.* (*G.*) sp.1, *ceylonicum* gr.
- viii. Pupa of *S.* (*G.*) *gombakense*
- ix. Pupa of *S.* (*M.*) sp.1
- x. Pupa of *S.* (*M.*) sp.2
- xi. Pupa of *S.* (*N.*) *vernum* gr.
- xii. Pupa of *S.* (*N.*) *feuerborni* gr.
- xiii. Pupa of *S.* (*S.*) sp.1, *variegatum* gr.
- xiv. Pupa of *S.* (*S.*) sp.2, *multistriatum* gr.
- xv. Pupa of *S.* (*S.*) sp.3, *tuberosum* gr.
- xvi. Male of *S.* (*G.*) sp.1, *ceylonicum* gr.
- xvii. Female of *S.* (*G.*) sp.1, *ceylonicum* gr.
- xviii. Male of *S.* (*G.*) *gombakense*
- xix. Male of *S.* (*N.*) *vernum* gr.
- xx. Female of *S.* (*N.*) *vernum* gr.
- xxi. Male of *S.* (*N.*) *feuerborni* gr.
- xxii. Female of *S.* (*N.*) *feuerborni* gr.
- xxiii. Male of *S.* (*S.*) sp.1, *variegatum* gr.
- xxiv. Female of *S.* (*S.*) sp.1, *variegatum* gr.
- xxv. Male of *S.* (*S.*) sp.3, *tuberosum* gr.
- xxvi. Female of *S.* (*S.*) sp.3, *tuberosum* gr.
- xxvii. Male of *S.* (*S.*) sp.2, *multistriatum* gr.
- xxviii. Female of *S.* (*S.*) *indicum*
- xxix. Female of *S.* (*M.*) sp.1
- xxx. Site I
- xxxi. Site II
- xxxii. Site III
- xxxiii. Sorting the pupae along with substratum in site III
- xxxiv. Pupae under rearing
- xxxv. Identifying the species under stereoscopic microscope
- xxxvi. Injury caused by blackfly bites

LIST OF ACRONYMS

| | |
|-------------------|----------------------------|
| ShNP | : Shivapuri National Park |
| NaOH | : Sodium hydroxide |
| KOH | : Potassium hydroxide |
| DO | : Dissolved oxygen |
| BOD | : Biological oxygen demand |
| KI | : Potassium iodide |
| MnSO ₄ | : Manganous sulphate |
| cm | : Centimeter |
| m | : Meter |
| sec | : Second |
| ml | : Millilitre |
| mg/L | : Milligram per litre |
| H' | : Species Diversity |
| r | : Correlation coefficient |
| S. | : <i>Simulium</i> |
| G. | : <i>Gomphostilbia</i> |
| N. | : <i>Nevermannia</i> |
| M. | : <i>Montisimulium</i> |
| sp. | : Species |
| gr. | : Group |
| Oct | : October |
| Nov | : November |
| Dec | : December |
| Jan | : January |
| Feb | : February |
| Mar | : March |
| Apr | : April |
| Jun | : June |
| max. | : Maximum |
| no. | : Number |

LIST OF TABLES

| | | |
|-----------|--|----|
| Table: 1. | Distribution and abundance of blackfly larvae collected during different months in site I. | 17 |
| Table: 2. | Distribution and abundance of blackfly pupae and adults collected during different months in site I. | 18 |
| Table: 3. | Distribution and abundance of blackfly larvae collected during different months in site II | 19 |
| Table: 4. | Distribution and abundance of blackfly pupae and adults collected during different months in site II. | 20 |
| Table: 5. | Distribution and abundance of blackfly larvae collected during different months in site III. | 21 |
| Table: 6. | Distribution and abundance of blackfly pupae and adults collected during different months in site III. | 22 |
| Table: 7. | Average values of physico-chemical parameters of different sites. | 27 |
| Table: 8. | Coefficient of Correlation between the variables. | 28 |

LIST OF FIGURES

| | | |
|------------|---|----|
| Figure 1: | Map of Shivapuri National Park. | 7 |
| Figure 2: | Panimuhan stream showing three study sites. | 7 |
| Figure: 3. | No. of larvae collected in different months from study sites. | 23 |
| Figure: 4. | No. of species sorted on the basis of larvae collected in different months from the study sites. | 24 |
| Figure: 5. | No. of pupae and adults collected in different months from the study sites. | 24 |
| Figure: 6. | No. of species recorded on the basis of pupae and adult collected in different months from the study sites. | 25 |
| Figure: 7. | Altitudinal distribution of blackfly species on the basis of larva | 26 |
| Figure: 8. | Altitudinal distribution of blackfly species on the basis of pupa and adult | 26 |