

**SURVEY ON *SIMULIUM* SPECIES (Diptera: Simuliidae)
AND ABUNDANCE IN RELATION WITH WATER QUALITY
AT LALITPUR DISTRICT, KATHMANDU**

Dissertation

Submitted in partial fulfillment

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

By

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2008

LETTER OF RECOMMENDATION

It is pleasure to mention here that Miss Urmila Dyola has completed her dissertation work entitled "**Survey on *Simulium* Species (Diptera: Simuliidae) and Abundance in Relation with Water Quality at Lalitpur District, Kathmandu**" under my supervision. This is the candidate's original work aiming to fulfill informations on *Simulium* species of various streams at Lalitpur. 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 Urmila Dyola has been accepted as a partial fulfillment of Master's Degree in Zoology of Institute of Science and Technology, T.U.

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Acknowledgement

I have an honor to express indebtedness to Internal Guide, respected Prof. Dr. Vasant Kumar Thapa, Head of Central Department of Zoology, T.U., Kirtipur for his valuable direction, kind guidance, continuous co-operation and timely supervision in completing my dissertation.

It is my pleasure to express my gratitude and thanks to Prof. Dr. Ananda Shova Tamrakar, lecturers Mr. Daya Ram Bhusal and Mr. Prem Bahadur Budha. I also feel proud to thank all the staffs of Central Department of Zoology, T.U., Kirtipur who helped me by giving necessary details without failure.

I am also grateful to Assoc. Prof. Dr. Mala Maskey, Tri-Chandra Multiple Campus, Ghantaghar, Kathmandu for her valuable suggestions. I need to extend my gratitude to Mr. Man Bahadur K.C., Senior Entomologist, Central Horticulture Centre, Kirtipur for providing laboratory facilities.

I would like to express my thanks to Pro. Dr. Hiroyuki Takaoka, Head of Department of Infectious Disease Control of Japan, Oita University, Hasama, Oita, for his guidelines and literatures. My special thanks go to my friend Jayant Kumar Upadhyay for his co-operation during field works and my school (LMV) members for their moral support.

At last, I would like to express my deepest sense of gratitude and thanks to my husband Mr. Upendra (Mandal) Amatya for his encouragement and support, to my parents especially my mother Laxmi Dyola and father Babu Raja Dyola along with all family members for their guidance, suggestion and help in successful completion of this work.

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ABSTRACT

Six months study (Oct, 2007 –March, 2008) was carried on black-flies at three sites (Godawari River, Nakkhu River and Karmanasa River) of Lalitpur District here by designated as site I, site II and site III respectively. Out of a total of 952 samples collected, only 729 were identified on the basis of larval, pupal and adult morphological features into four different species of *Simulium* i.e *S. (Simulium.) variegatum* gr., *S. (S.) multistriatum* gr ., *S (S.) tuberosum* gr. and *S (S.).indicum*. Study on monthly variations was exposed to significant variation of black-fly species in every month in site I and II but no record of the fly in site III was made throughout the study period.

Common type of species diversity in site I ($H^- = 1.154$) and II ($H^- = 1.50$) was recorded due to alike environmental factors in those sites and January appeared to be the most suitable month for the abundance of species while October as the least.

Present study also justified the accountable relationship of species with temperature; DO and water current in both site I and site II.

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List of Abbreviations

BOD	: Biological Oxygen Demand
cm	: Centimeter
Dec	: December
DO	: Dissolved Oxygen
G.	: <i>Gomphostilbia</i>
gr.	: Group
Feb	: February
H ⁺	: Species Diversity
Jan	: January
KI	: Potassium iodide
KOH	: Potassium hydroxide
M.	: <i>Montisimulium</i>
m	: Meter
Mar	: March
mg/ltr	: milligram per liter
ml	: milliliter
MnSO ₄	: Manganous sulphate
N.	: <i>Nevermannia</i>
NaOH	: Sodiumhydroxide
no.	: Number
Oct.	: October
r	: Correlation coefficient
S.	: <i>Simulium</i>
sp.	: Species