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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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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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 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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CERTIFICATE OF APPROVAL

The dissertation submitted by Miss Urmila Dyola entitled "**Survey on *Simulium* Species (Diptera: Simuliidae) and A bundance in Relation with Water Quality at Lalitpur District, Kathmandu"** has been accepted as a partial fulfillment for the Master's Degree in Zoology of Institute of Science and Technology, T.U.

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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.) tuberosu*m 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 ($\bar{H}$=1.154) and II ($\bar{H}$= 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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BOD	: Biological Oxygen Demand
cm	: Centimeter
Dec	: December
DO	: Dissolved Oxygen
G.	: *Gomphostilbia*
gr.	: Group
Feb	: February
H^{-}	: Species Diversity
Jan	: January
KI	: Potassium iodide
KOH	: Potassium hydroxide
M.	: *Montisimulium*
m	: Meter
Mar	: March
mg/ltr	: milligram per liter
ml	: milliliter
$MnSO_4$	: Manganous sulphate
N.	: *Nevermannia*
NaOH	: Sodiumhydroxide
no.	: Number
Oct.	: October
r	: Correlation coefficient
S.	: *Simulium*
sp.	: Species