

**PARASITIC DISEASES AND ESTIMATION OF ECONOMIC
LOSSES DUE TO INFESTATION OF PARASITES IN
AQUACULTURE PONDS OF RUPANDEHI, NEPAL**



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**A thesis submitted in partial fulfillment of the requirements for the
award of the degree of Master of Science in Zoology with special paper
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Submitted to:

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RECOMMENDATION

This is to recommend that the thesis entitled **Parasitic Diseases and Estimation of Economic losses due to Infestation of Parasites in Aquaculture Ponds of Rupandehi, Nepal** has been carried out by Keshab Bahadur Mahat for the partial fulfillment of Master's Degree of Science in Zoology with special paper Fish and Fisheries. This is his original work and has been carried out under my supervision. To the best of my knowledge, this thesis work has not been submitted for any other degree in any institutions.

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LETTER OF APPROVAL

On the recommendation of supervisor **Prof. Dr. Kumar Sapkota** this thesis submitted by Keshab Bahadur Mahat entitled "**Parasitic Diseases and Estimation of Economic losses due to Infestation of Parasites in Aquaculture Ponds of Rupandehi, Nepal**" 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 Fish and Fisheries.

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This thesis work submitted by Keshab Bahadur Mahat entitled “**Parasitic Diseases and Estimation of Economic losses due to Infestation of Parasites in Aquaculture Ponds of Rupandehi, Nepal**” has been approved as a partial fulfillment for the requirements of Master’s Degree of Science in Zoology with special paper Fish and Fisheries.

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DECLARATION

I hereby declare that the work present in this thesis has been done by myself and has not been submitted elsewhere for the award of my degree. All the sources of information have been specifically acknowledged by references to all the author(s) or institution(s).

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ABSTRACT

Parasites have major economic impacts on fisheries and aquaculture sector worldwide. Parasitic infestation causes the serious economical loss to the fish farmers. This research was conducted to determine the loss due to the infestation of parasites in *Labeo rohita* and *Cirrhinus mrigala* from aquaculture pond of Rupandehi, Nepal during the period from February to July 2016. The data were collected from four study areas (Nepal Government fishery development center, Bhairahawa; Mandal hatchery, Pathardada; and ponds of Dayanagar and Manmateria Village Development Committee) through a questionnaire survey and interviews; Direct observation and participatory rural appraisal tools like focus group discussions with the aquaculture farmers of the study area were also conducted to collect the data. A total of 77 ponds were visited and 136 pond farmers were interviewed during the study periods. The most prevalent diseases were Argulosis (37.66 %) followed by Red spot (14.28 %), Fungal disease (10.38 %), Unknown A (9.09%), Gill- rot (7.79%), unknown B (6.49 %), Dropsy (6.49%) Pisciculosis (5.19%) and Lerniasis (2.59 %). The total economic loss incurred due to the infestation of parasites was estimated to be NRS 48245.00/ha/yr. The overall loss due to parasitic diseases was calculated to be 7 % for mortality, 10 % for treatment cost and 83 % for reduction of growth of fishes in the study areas. Hence, elucidation of the pathogenesis of parasitic diseases as well as the development of efficient curative and effective preventive measures should be initiated to prevent the huge economic losses in aquaculture industry of Rupandehi.

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LIST OF ABBREVIATIONS

Abbreviated form	Details of abbreviations
CDZ	Central Department of Zoology
VDC	Village Development Committee
FAO	Food and Agriculture Organization
T.U	Tribhuvan University
FDC	Fishery Development Center
No.	Number
et al.	and his associates
Sqkm	Square kilometer
Km	Kilometer
ml	Milliliter
mm	Millimeter
gm	Gram
A.D.	Amino Domino
E	East
N	North
pH	Percentage of Hydrogen ion concentration
DO	Dissolved Oxygen