

**EFFECT OF HERBAL TOXICITY ON THE OVARY
OF
*Clarias batrachus: Histological Study***

Logo

Binita Chaudhary

T.U. Registration No: 5-1-50-1219-2005

T.U. Examination Roll No: 6207

Batch: 2065/66

A thesis submitted in the fulfillment of the requirements for the award of the degree of Master of Science in Zoology with special paper Fish and Fisheries

Submitted to

Central Department of Zoology
Institute of Science and Technology
Tribhuvan University
Kirtipur, Kathmandu
Nepal
August, 2012

RECOMMENDATIONS

This is to recommend that the thesis entitled "Effect of Herbal Toxicity on the Ovary of *Clarias batrachus*: *Histological Study*" has been carried out by Binita Chaudhary for the partial fulfillment of Master's Degree of Science in Zoology with special paper Fish and Fisheries. This is her 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.

Date:-

.....

Dr. Archana Prasad

Lecturer

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu, Nepal

LETTER OF APPROVAL

On the recommendation of supervisor “Dr. Archana Prasad” this thesis submitted by Binita Chaudhary entitled "Effect of Herbal Toxicity on the Ovary of *Clarias batrachus*: *Histological Study*" 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.

Date: -

.....

Prof. Dr. Ranjana Gupta

Head of Department

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu, Nepal

CERTIFICATE OF ACCEPTANCE

This thesis work submitted by Binita Chaudhary entitled "Effect of Herbal Toxicity on the Ovary of *Clarias batrachus*: *Histological Study*" has been accepted as a partial fulfillment for the requirements of Master's Degree of science in Zoology with special paper Fish and Fisheries.

.....
Supervisor
Dr. Archana Prasad
Lecturer
Central Department of Zoology
Tribhuvan University

.....
Prof. Dr. Ranjana Gupta
Head of Department
Central Department of Zoology
Tribhuvan University

.....
External Examiner

.....
Internal Examiner

Date -.....

DECLARATION

I hereby declare that the work presented in this thesis has been done by myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by reference to the authors or institutions.

Date.....

.....
Binita Chaudhary

ACKNOWLEDGEMENT

I am very much indebted to my respected supervisor Dr. Archana Prasad, Lecturer, Central Department of Zoology, Tribhuvan University, Kirtipur for her constant inspiration, encouragement, continuous support, valuable suggestions and constant guidance during the entire period of this research work.

I express my sincere gratitude to Prof. Dr. Ranjana Gupta, the Head of Department for her kind administration support.

I am very grateful to the Central Department of Chemistry, Tribhuvan University for their help in grinding the dried pieces of Ketuke.

I am equally thankful to the staffs of Central Veterinary Office, Tripureshwor for letting me to do the work related to microtomy and their support.

I would also like to express my thanks and best regards to all the staffs of CDZ, T.U for their help from respective sectors.

I would like to express my deepest gratitude to my family members, friends and all those persons who helped me directly or indirectly to complete this work, without whose support and inspiration I could not have gained the Master's Degree.

Binita Chaudhary

Regd. No.:5-1-50-1219-2005

Batch :2065/66

Roll No.:6207

Fish and Fisheries

ABSTRACT

The present work examines the effects of *Agave americana* on the behaviour and histological alterations on the ovary of air breathing fish, *Clarias batrachus*. Fresh water fish, *Clarias batrachus*, was with *A. americana* provided at different concentration i.e. 3 gm, 4.5 gm and 6 gm for different period of time i.e. 24, 48, 72 and 96 hours.

The behavioural changes observed were restlessness, jerky and violent movements, increased gulping activity and excessive secretion of mucus all over the body. Later the fish were sluggish and showed lethargic movements and finally came to surface and died. The histological alterations observed in the ovary of fish at all time periods were increased number of atretic follicles, cytoplasmic shrinkage, vacuolization, necrosis and degeneration of follicular cells and lowering of lipid level. The severity of these changes was time dependent.

It was concluded that although botanical pesticides are being considered as less toxic/safe, but it may provoke morphological changes in vital organs of the fish such as ovary. Hence, precautions must be taken into consideration when herbal poisons are being used in fish inhabiting areas.










CONTENTS

	Pages
Declaration	i
Recommendation	ii
Letter of Approval	iii
Certificate of Acceptance	iv
Acknowledgements	v
List of Photographs	vii
List of Abbreviations	viii
Abstract	ix
1. INTRODUCTION	1
1.1 Description of the herb <i>A. americana</i>	5
1.2 General description of the specimen	6
1.3 Objectives	8
1.4 Study area	9
2. LITERATURE REVIEW	10
3. MATERIALS AND METHODS	16
3.1 Methods for histological study	17
3.1.1 Fixation and microtomy	17
3.1.2 Staining Procedure	17
3.1.3 Permanent slide preparation	18
4. RESULTS	19
4.1 Ovary under controlled condition	19
4.2 Ovary treated with <i>A. americana</i> for 24 hours	20
4.3 Ovary treated for 48 hours	21
4.4 Ovary treated for 72 hours	22
5. DISCUSSION	23
6. CONCLUSION AND RECOMMENDATIONS	26
7. REFERENCES	27

LIST OF PHOTOGRAPHS

Photograph	Title of Photograph	Pages
1.	Section of ovary under controlled condition	19
2.	Section of ovary under controlled condition	19
3.	Section of ovary treated for 24 hours	20
4.	Section of ovary treated for 24 hours	20
5.	Section of ovary treated for 48 hours	21
6.	Section of ovary treated for 48 hours	21
7.	Section of ovary treated for 72 hours	22
8.	Section of ovary treated for 72 hours	22

LIST OF ABBREVIATIONS

Abbreviated form	Details of abbreviations
	Atretic oocyte
	Cytoplasmic shrinkage
	Germinal epithelium
	Zona granulosa
	Zona radiata
	Theca
	Bulging of oocyte
	Bifurcation of oocyte
	Necrosis of oocyte
L	Lipid
V	Vacuole
YG	Yolk globules or granules
YV	Yolk vesicle