A REVIEW ON IMPACT OF PESTICIDES ON ENDOCRINE REGULATION OF FISH REPRODUCTION

A Review Article submitted

In Partial fulfillment for degree of MASTER OF SCIENCE IN ZOOLOGY

by

ADYASHA PASAYAT

Under supervision of

DR. SUSHANT KUMAR VERMA ASSISTANT PROFESSOR



DEPARTMENT OF ZOOLOGY
GURU GHASIDAS VISHWAVIDYALAYA
KONI, BILASPUR (C.G) – 495009



Department of Zoology

Guru Ghasidas Vishwavidyalaya

(A Central University established by Central University Act 2009 No. 25 of 2009)

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This is to certify that Ms. Adyasha Pasayat has worked for dissertation for M.Sc. (Zoology) degree entitled "Impacts of Pesticides on Endocrine Regulation of Fish Reproduction" under my supervision for three months and this work has not been formed the basis for the award of any other degree.

It represents entirely an independent work on the part of candidate.

Date: 09.08.2023

Place: Bilaspur.

Date: 09.08.2023
Place: Bilaspur.

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Signature of Supervisor

Head of the Department



Introduction

The fish Reproductive Cycle

- · Vitellogenesis And Spermatogenesis
- · FOM And Spermiation

Endocrine Regulation of Fish Reproduction

- · Overview of Brain-hypophyseal-gonadal axis
- Oogenesis
- Spermatogenesis
- Gonadal Steroids

Effect of Various Pesticides on Reproductive Function of Fishes

- Effect of Organophosphate Pesticides
- Effect of Organochlorine Pesticides
- Effect of Carbamate Pesticides
- Effect of Pyrethroid Pesticides
- Effect of Rotenone Pesticides
- · Effect of Tihan Pesticides

Effect of Herbicides

Discussion

Conclusion

List of Abbreviations

Reference

Therapeutic potential of *Putranjiva roxburghii*Wall. against carbon tetrachloride induced hepatic injury in rats



Dissertation submitted in partial fulfilment for degree of

M. Sc. in Zoology

By

Akash Sahu

Dr. Monika Bhadauria
Associate Professor
Supervisor

Dr. Nisha Sahu Assistant Professor (Ad hoc) Co-supervisor

Department of Zoology Guru Ghasidas Vishwavidyalaya Koni- Bilaspur 495009 (C.G.) 2022



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This is to certify that Mr. Akash Sahu has worked for M.Sc. (Zoology) dissertation entitled "Therapeutic potential of *Putranjiva roxburghii* Wall. against carbon tetrachloride induced hepatic injury in rats" under our supervision for about 3 months and this work has not been formed the basis for the award of any other similar title.

It represents entirely an independent work on the part of candidate.

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Date: 20.09.2022

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Place: Bilaspur

Head of the Department

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HEAD
जन्तु विज्ञान विभाग
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जोकश्यक Vishwavidvalava Rilasow

î .

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Effect of Type 2 Diabetes on Rat Kidney



A

Project dissertation submitted
In partial fulfillment for the degree of
M.Sc. Zoology

By

Anjali Mishra

Under the supervision of

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Assistant Professor



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This is to certify that Ms. Anjali Mishra has on a postgraduate dissertation entitled "Effect of Type 2 Diabetes on rat Kidney" under my supervision for 3 months and this work has not been formed as the basis for the award of any other similar title.

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जन्तु विज्ञान विभाग Department of Zoology मुरु धासीदास वि.वि., बिलासपुर

2

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Implication of metabolic precipitates in the pathogenesis of hepatic encephalopathy.



Submitted in Partial Fulfilment for the Degree of Master of Science in Zoology

Submitted By

Ms. Aparna Tripathi

M.Sc. Zoology (IV Semester)

UNDER THE SUPERVISION OF

Dr. Santosh Singh

Assistant Professor



Department of Zoology
Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.
2022-23



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CERTIFICATE

This is to certify that Miss. Aparna Tripathi has worked on dissertation entitled "Implication of metabolic precipitates in the pathogenesis of hepatic encephalopathy." for M.Sc. (Zoology) degree under my supervision for six months and this work has not been formed the basis for the award of any degree.

It represents entirely an independent work on the part of candidate

Signature of Supervisor

Date: 9/08/2023

Place: Bilaspur

Signature of Head of Department



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Association of FTO gene rs9939609 polymorphism and polycystic ovary syndrome: A meta-Analysis

A

Project dissertation submitted in partial fulfillment for degree of Master of Science in Zoology

By

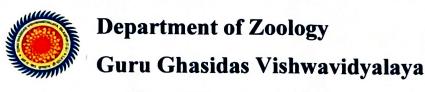
Mr. Ashish Mishra
Roll No. 21062104
Enrollment no. GGV/21/03403

Under the supervision of Dr. L.V.K.S. Bhaskar (Professor of Zoology)



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KONI, BILASPUR 495009 Academic session 2021-2023



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This is to certify that the dissertation entitled "Association of FTO gene rs9939609 polymorphism and polycystic ovary syndrome: A meta-Analysis" is based on the original work done and being submitted by Mr. Ashish Mishra bearing Roll No-21062104, Enrollment No. GGV/21/03403 to the Department of Zoology, Guru Ghasidas Vishwavidyalaya (A Central University) for the award of the degree of Master of Science in Zoology, is a record of Bonafide research work carried out by him during the period from February to July 2023, under my supervision and guidance.

The matter presented in this dissertation has not been submitted for the award of any other degree of this or any other institute and it represents entirely an independent work of the candidate.

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Ghasidas Vishwavidvalava Billisou

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Therapeutic potential of Anthocephalus cadamba Roxb. in mitigating carbon tetrachloride-induced kidney injury in rats



Dissertation submitted in partial fulfilment for degree of

M. Sc. in Zoology
By

Mr. Bharadwaj Meher

Under the supervision of

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2023



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Date: 07/08/2023

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Date:/08/2023

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APPLICATIONS OF BIOFLOC TECHNOLOGY (BFT) IN AQUACULTURE.



A Project Dissertation submitted in partial fulfilment for the degree of

M.Sc. Zoology

By

Bhupesh Kumar Pradhan

Under the Supervision of

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This is to certify that Master Bhupesh Kumar Pradhan has on postgraduate dissertation submitted the dissertation entitled "Applications of Biofloc Technology (BFT) in Aquaculture" under the supervision of Dr. Naresh Chandra Agrawal and this work does not form the basis for the award of any other similar title.

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L.v. Lesshaw.

Head of Department.

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"Protective effect of melatonin during PCOS-induced pancreatic impairment in rats"

A Project dissertation submitted in partial fulfillment for degree of M.Sc. Zoology

By

Jyoti Prangya Sahu

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GURU GHASIDAS VISHWAVIDYALAYA

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This is to certify that Miss Jyoti Prangya Sahu Roll no. 21062107 Enrollment no. GGV/18/3108 has worked on postgraduate dissertation project entitled "Protective effect of melatonin during PCOS-induced pancreatic impairment in rats" under my supervision for months and this work has not been formed the basis for the award of any other similar title.

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AMELIORATIVE EFFECT OF MELATONIN ON GLUCOCORTICOID INDUCED BIOCHEMICAL AND HISTOLOGICAL INJURIES OF LIVER TISSUE IN MALE ALBINO RATS

A Project dissertation submitted in partial fulfillment for degree of M.Sc. Zoology

By

K. Baishnabi

Under supervision of

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Dean of School of Life Science



Department of Zoology Guru Ghasidas University, Bilaspur (C.G.) 2023



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This is to certify that Miss K. Baishnabi has worked on postgraduate dissertation project entitled "Ameliorative effect of melatonin on glucocorticoid induced biochemical and histological injuries of liver tissue in male albino rats" under my supervision for 3 months and this work has not been formed the basis for the award of any other similar title.

It represents entirely an independent work on the part of candidate.

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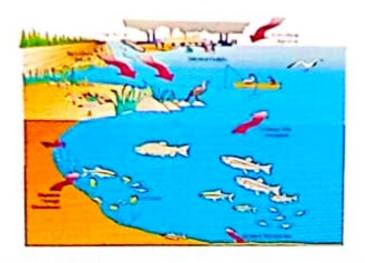
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Signature of Supervisor Professor (Mrs

L. M. Bhaty
Head of Department

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INFLUENCE OF THERMAL POWER GENERATION ON THE FISHES



Α

Project dissertation submitted In partial fulfillment for degree of

M. Sc. Zoology IVth Semester

By

MAHIMA GARHWAL

Under the supervision of

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Head of the Department

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Department of Zoology Guru Ghasidas Vishwavidyalaya

(A Central University Established by Central University Act 2009 No.25 of 2009)

DECLARATION

I, MAHIMA GARHWAL hereby declare that the work presented in the dissertation entitled "INFLUENCE OF THERMAL POWER GENERATION ON THE FISHES" submitted for partial fulfillment of M. Sc. Zoology was carried out at the Department of Zoology, Guru Ghasidas Vishwavidyalaya, Koni-Bilaspur (C.G.).

The work was carried out by me under the supervision of Dr. Neha Jain, Assistant Professor, Department of Zoology, Guru Ghasidas Vishwavidyalaya. The work presented in this dissertation is original and it has not previously formed the basis for the award of any degree.

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CYP19 gene rs10046 polymorphism is not contributing to the risk of breast cancer: a meta-analysis

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By

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CERTIFICATE

I certify that the dissertation entitled "CYP19 gene rs10046 polymorphism is not contributing to the risk of breast cancer - a meta-analysis." submitted for the partial fulfilment of M.Sc. Zoology by Ms. Manju Patel, is the record of research/review work carried out by her during the period from February to July 2023, under my supervision and that this research work has not formed the basis for the award of any degree, diploma, associateship, fellowship or other similar titles in this University or any other University or institution.

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Prof. LVKS Bhaskar



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MELATONIN ALLEVIATES GLUCOCORTICOID-INDUCED IMPAIRMENTS OF KIDNEY TISSUE IN MALE ALBINO RAT

A Project dissertation submitted In partial fulfillment for degree of

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By

Marylin Taye

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(A central university established by act of Parliament 2009 no. 25 of 2009

CERTIFICATE

This is to certify that Miss Marylin Taye has worked on postgraduate dissertation project entitled "Melatonin alleviates glucocorticoid-induced impairments of kidney tissue in male albino rat" under my supervision for 3 months and this work has not been formed the basis for the award of any other similar title.

It represents entirely an independent work on the part of candidate.

Place: Bilaspur

Date: 9/08/2023

Place: Bilaspur

Date:

Signature of Supervisor

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Avis Bhash Head of the Department

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GUT CONTENT ANALYSIS OF A PREDATORY FISH, Wallago attu



A

Project dissertation submitted

In partial fulfillment for degree of

M.Sc. Zoology

By

Monika Khare

Under the supervision of

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(Assistant Professor)



Department of Zoology

GuruGhasidasVishwavidyalaya,Bilaspur (CG)

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CERTIFICATE

supervision for 3 months and this work has not been formed the basis for the award This is to certify that Ms. Monika Khare has on postgraduate dissertation project of any other similar title. entitled "Gut content Analysis of a predatory fish, Wallago attu" under my

It represents entirely an independent work on the part of candidate.

Date: 08/08/23

Signature of Supervisor

Place: Bilaspur (C.G.)

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References

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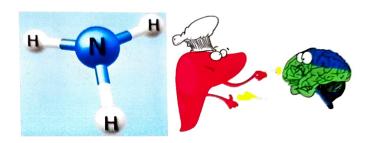
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Place: Bilaspur (C.G.)

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Hyperammonenemic Encephalopathy vs Hepatic Encephalopathy: A review on cause and effect



Dissertation submitted for the

Partial fulfillment of the degree of

M. Sc. in Zoology

Ву

Muskan Shambhi

Under the supervision of

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Assistant Professor



Department of Zoology

Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), 2023

Department of Zoology Guru Ghasidas Vishwavidyalaya

(A Central University established by Central University Act 2009 No. 25 of 2009)

CERTIFICATE

This is to certify that Miss. Muskan Shambhi, a student of M.Sc. (Zoology) IVth semester has worked on a dissertation project entitled "Hyperammonenemic Encephalopathy vs Hepatic Encephalopathy: A review on cause and effect" under the supervision of Dr. Santosh Singh for three months and this work has not been formed the basis for the award of any other degree.

It represents entirely independent work on the part of the candidate.

Signature of the Supervisor

Sawas Sin

Date: 9.8.23

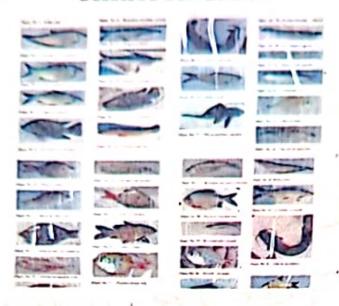
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Livid Bhang
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A STUDY ON FISH DIVERSITY OF BILASPUR CHHATTISGARH



Α

Project dissertation submitted
In partial fulfillment for degree of

M. Sc. Zoology IVth Semester

Ву

NAMITA PRADHAN

Under the supervision of

Dr. Neha Jain

Assistant Professor



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2023



Department of Zoology Guru Ghasidas Vishwavidyalaya

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CERTIFICATE

This is to certify that NAMITA PRADHAN has worked on postgraduate dissertation project entitled "A STUDY ON FISH DIVERSITY OF BILASPUR CHHATTISHGARH" under my supervision and this work has not been formed the basis for the award of any other similar title. It represents entirely independent work on the part of the candidate.

Date: 04 | 08 | 2023

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Place: Bilaspur (C.G.)

Levike Bhos 14 18/2023

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Hepatoprotective potential of Anthocephalus cadamba Roxb. against carbon tetrachloride induced hepatic injury in rats



Dissertation submitted in partial fulfilment for degree of M. Sc. in Zoology

By

Ms. Nikita Sahu

Under the supervision of

Prof. Monika Bhadauria

Professor, Department of Zoology Guru Ghasidas Vishwavidyalaya Koni- Bilaspur 495009 (C.G.)

2023



Department of Zoology Guru Ghasidas Vishwavidyalaya Koni, Bilaspur 495009 (C.G.)

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CERTIFICATE

This is to certify that Ms. Nikita Sahu has worked for M.Sc. (Zoology) dissertation entitled "Hepatoprotective potential of Anthocephalus cadamba Roxb. against carbon tetrachloride induced hepatic injury in rats" under my supervision for about 3 months and this work has not been formed the basis for the award of any other similar title.

It represents entirely an independent work on the part of candidate.

Date: 07/08/2023

Place: Bilaspur

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Date:/08/2023

Place: Bilaspur

Date:/08/2023

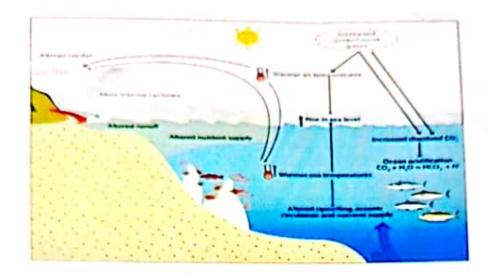
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Ghasidas Vishwallus External Experi

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IMPACT OF CLIMATE CHANGE ON FISH BIOLOGY



A

Project dissertation submitted
In partial fulfillment for degree of

M. Sc. Zoology IVth Semester

By

PARUL SONWANI

Under the supervision of

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Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

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This is to certify that PARUL SONWANI has worked on postgraduate dissertation project entitled "IMPACT OF CLIMATE CHANGES ON FISH BIOLOGY" under my supervision and this work has not been formed the basis for the award of any other similar title. It represents entirely independent work on the part of the candidate.

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Place: Bilaspur (C.G.)

Livike Bland 4/8/2023



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EVALUATION OF OXIDATIVE STRESS IN FRESH WATER TELEOST *LABEO ROHITA* EXPOSED TO HERBICIDE QUIZALOFOP-ETHYL

A Dissertation Submitted
In partial fulfillment for degree of
Master of Science in Zoology

Submitted By
Mr. Prem Prakash sahu

Under the supervision of

Dr. Sushant Kumar Verma Assistant Professor



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This is to certify that Mr. Prem Prakash Sahu has worked for M.Sc. (Zoology) dissertation entitled "EVALUATION OF OXIDATIVE STRESS IN FRESH WATER TELEOST LABEO ROHITA EXPOSED TO HERBICIDE QUIZALOFOP-ETHYL" under my supervision for about 3 months and this work has not been formed the basis for the award of any other similar title.

It represents entirely an independent work on the part of candidate.

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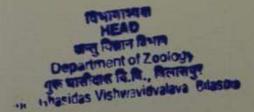
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Place: Bilaspur

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Assessment of toxicological impact of graphene oxide on zebrafish (*Danio rerio*) brain

Project dissertation submitted
In Partial fulfillment for degree of
MASTER OF SCIENCE IN ZOOLOGY

by

Shruti Banjare

Under supervision of

DR. GITA MISHRA
ASSISTANT PROFESSOR



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Putranjiva roxburghii Wall. extract ameliorates carbon tetrachloride induced biochemical alterations in hepatic microsomal compartment in rats





Dissertation submitted in partial fulfilment for degree of M. Sc. in Zoology

By

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Genotoxic Effect of Herbicide Quizalofop Ethyl on Fresh Water teleost *Labeo rohita*



Dissertation submitted
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M. Sc. in Zoology

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Signature of External Expert

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Study on effect of Melatonin on Constant light- induced biochemical and histological brain impairments

A Project dissertation submitted in partial fulfillment for degree of M.Sc. Zoology

By

SOMYA MAHAPATRA

Under supervision of

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Dean of School of Life Science



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Unravelling the Impact of TNFA -308 (rs1800629) on Periodontitis Susceptibility: A Meta-Analysis

A

Project dissertation submitted
In partial fulfilment for degree of
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By

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rotective effect of Anthocephalus cadamba Roxb. on carbon tetrachloride induced alterations in liver functions



Dissertation submitted in partial fulfilment for degree of

M. Sc. in Zoology

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rs2279744 polymorphism in MDM2 Gene and risk of developing Leukemia: A Meta-analysis

A Project dissertation submitted In partial fulfilment for degree of

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Report of the Committee of the Committee

Protective effect of Anthocephalus cadamba Roxb. on carbon tetrachloride induced splenic injury in rats



Dissertation submitted in partial fulfilment for degree of

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By

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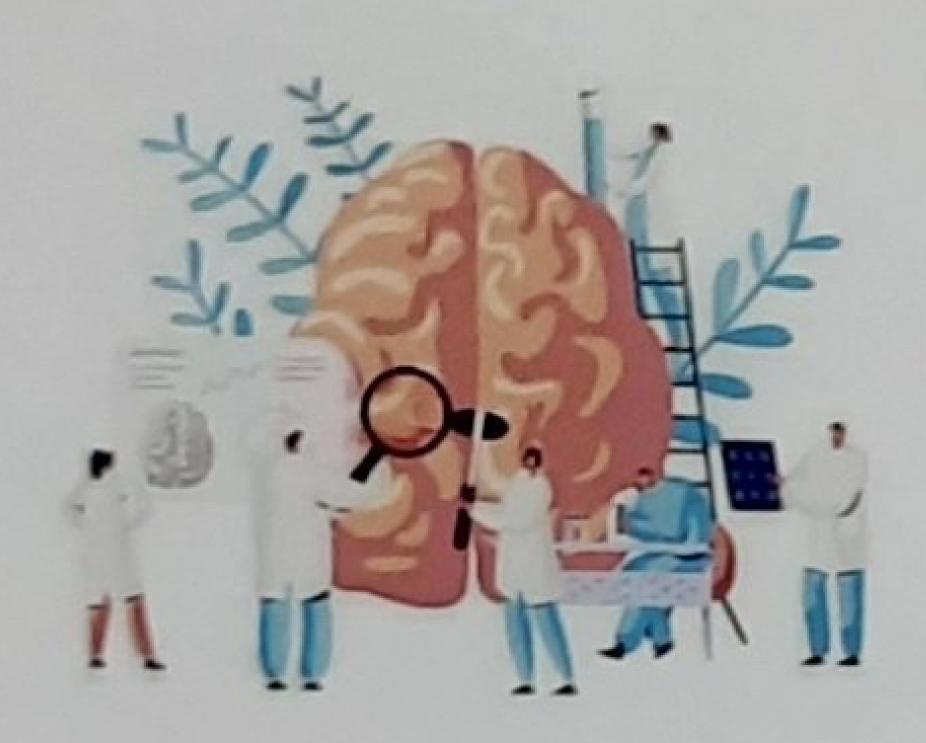
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High Mobility Group Box Protein (HMGB1): A Potential Therapeutic Target for Diabetic Encephalopathy



Dissertation Submitted in Partial Fulfilment for the Degree of Master of Science in Zoology

Submitted By

Mr. Udit Kumar Dash

M.Sc. Zoology (IV Semester)

UNDER THE SUPERVISION OF

Dr. Santosh Singh

Assistant Professor



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STOMACH CONTENTS ANALYSIS OF A SNAKE HEAD FISH,

Channa punctatus



A

Project dissertation submitted

In partial fulfillment for degree of

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By

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