KAKATIYA GOVERNMENT COLLEGE

HANUMAKONDA

Name : Dr. T. Bheem Rao
Designation : Assistant professor,
Year of Award of PhD. : 2018
Name of the University : Kakatiya University
Year of entering into Govt. Service : 2022

S. No.	Details of copies of Certificates	
1	Copy of Ph.D Certificate	yes submitted
2	Press note	yes submitted
3	Research work dates of seminars and Pre-Ph.D Date of joining in this college	yes submitted
4	Details of Ph.D Admission-part time or full time	part-time
5	Copies of RDC Approval letters of Ph.D	NA
6	Name of guide/supervisors with mobile number, email id venkaiahyanamala07@gmail.com	Prof. V. Venkaiah 9849848705
7	Copies of guide allotment letter	yes submitted
8	No. of increments sanctioned for Ph.D.	03
9	Published Research article-copies.	05
10	Original Ph.D Thesis.- Book.	yes available in office

PRINCIPAL
KAKATIYA GOVT COLLEGE
Hanamkonda.

Dr T. Bheem Rao

OFFICE OF THE DEAN
Faculty of Sciences
Kakatiya University, Warangal – 506 009 (T.S.), India
(Accredited with "A" Grade by the NAAC)

Prof. Y. Prameela Devi
Professor of Zoology & Dean

Phone: (O) 0870-2461434

No. 02 /DFS/KU/2017

Date: 12-01-2017

ORDERS

Sub: Faculty of Science - Ph.D. Admissions for the Year 2012-13 - Department of Zoology - Orders – Issued

Ref: KU Orders No:- 786/DFS/KU/2015, Dated: 31-07-2015.

* * *

On the recommendation of the Admission Committee and with the approval of the Vice-Chancellor, Kakatiya University, Warangal, the following candidates have been provisionally selected for admission to the Ph. D. Programme for the year 2012-13 in the Department of Zoology.

Sl.No	Name of the Candidate	Social Status	Name of the Research Supervisor	Research Topic	Part-time Pull-time
01.	Sangem Swetha	OC	Dr. E. Narayana	In Vivo Studies on Sonata (Fungicide) Induced Stress in Some Aquatic Organism	Part-time
02.	M. Pranita	BC-B	Dr. Ch. Sravanthy	Pesticide effects on Earthworms in semi arid tropical regions of Medak District	Part-time
03.	Bheem Rao. T	OC	Dr. Y. Venkaiah	Effect of Parathion (An Organophosphate) on Tissue Specific Esterase Patterns in Indian Cat Fish *Heteropneustes fossilis* (Bloch)	Part-time
04.	Katduri Ravi Kumar	BC-D	Dr. G. Rajender	Study on Population Dynamics of Vultures in Telangana	Part-time

P.T.O

In all other matters they shall be governed by the existing rules and regulations of the Ph. D. Programme.

Any deviation in observing the above rules by the candidates will entail cancellation of their registration.

DEAN

Copy to:

1. The Principal, University College, KU
2. The Head, Department of Zoology, KU
3. The Chairperson, Board of Studies in Zoology, KU
4. The Supervisors concerned
5. The Controller of Examinations KU
6. The Member In-charge, University Library, KU
7. The Deputy Registrar, Academic Branch, KU
8. The Secretary to Vice-Chancellor, KU
9. The SF

Kakatiya University

No. 0581

PROVISIONAL CERTIFICATE
Ph.D.

This is to certify that Bheem Rao T

Son/Daughter of Narsinga Rao

has been declared qualified for the award of the Ph.D. Degree in Zoology of this University in December, 2018

Topic of Thesis :

"Effect of Methyl Parathion (An Organophosphate) on Tissue Specific Esterase Patterns in Indian Cat Fish Heteropneustes fossilis (Bloch)"

Warangal, T.S.-506009

Date: 04-01-2019

for Regr

EXAMINATION BRANCH
KAKATIYA UNIVERSITY
WARANGAL – 506 009 (TS) INDIA

No. 585 /E1/Ph.D./KU/2018 Date: 22-12-2018

PRESS NOTE

Mr. Bheem Rao T, Research Scholar in **Zoology**, Kakatiya University, Warangal, who has presented a thesis for the Degree of Ph.D. in **Zoology** entitled **"Effect of Methyl Parathion (An Organophosphate) on Tissue Specific Esterase Patterns in Indian Cat Fish *Heteropneustes fossilis* (Bloch)"** has been declared qualified for the Degree of **Doctor of Philosophy** (Ph.D.) of the Kakatiya University.

"By Order"

Controller of Examinations

Copy forwarded for information to:

1. The Registrar, Kakatiya University, Warangal.
2. The Secretary, University Grants Commission, New Delhi-110 002.
3. The Editor, University News, A.I.U., 16 Kotla Marg, New Delhi-110 002.
4. The Dean, Faculty of Science, Kakatiya University, Warangal.
5. The Coordinating Officer, U.G.C. Unit, Kakatiya University, Warangal.
6. The Principal, University College, Kakatiya University, Warangal
7. The Head, Department of Zoology, Kakatiya University, Warangal.
8. The Chairperson, Board of Studies in Zoology, Kakatiya University, Waragnal.
9. The E X A M I N E R.
10. **Dr. Y. Venkaiah** (Supervisor), Dept. of Zoology, Kakatiya University, Warangal
11. The Nodal Officer, Kakatiya University, Warangal.
12. The Member-in-Charge, University Library, Kakatiya University, Warangal.
13. The Deputy Registrar (Admn.), Kakatiya University, Warangal.
14. The Public Relations Officer, Kakatiya University, Warangal.
15. The Secretary to Vice-Chancellor, Kakatiya University, Warangal.
16. The Documentation Section (E5), Examination Branch, K.U., Warangal.

The Person concerned (**Bheem Rao T S/o Narsinga Rao**)

s

(2971)

No. 278795

Kakatiya University

Faculty of Science

This is to certify that *Bheem Rao T* son/daughter of *Narsinga Rao* having pursued a course of study prescribed by this University and having passed the requisite examination by thesis, has been admitted to the degree of

Doctor of Philosophy

in Zoology

The title of the thesis is:

Effect of Methyl Parathion (An Organophosphate) on Tissue Specific Esterase Patterns in Indian Cat Fish Heteropneustes fossilis (Bloch)

The candidate has been declared qualified for the award of the Degree of Ph.D. on 22-12-2010.

Given under the seal of the University

Warangal, Telangana State, India

Date 23 August 2022

Vice Chancellor

Examination : M.Sc. (ZOOLOGY) JULY, 2016 Date : 10-11-2016

Candidate's Name : [illegible] RAO T

Father's Name : NARSINGA RAO

Roll No. 150001705

SUBJECT	MAXIMUM MARKS	PASS MARKS	MARKS SECURED	SUBJECT RESULT
RESEARCH TECHNIQUES IN ANIMAL SCIENCES	100	050	045	PASS
ENVIRONMENTAL BIOLOGY	100	050	058	PASS

TOTAL MARKS : ONE HUNDRED AND TWENTY THREE 123

RESULT : PASSED

Application with prescribed fee for recounting/revaluation will be accepted only upto ten days from the date of Memorandum of Marks.

EFFECT OF METHYL PARATHION (AN ORGANOPHOSPHATE) ON TISSUE SPECIFIC ESTERASE PATTERNS IN INDIAN CAT FISH *HETEROPNEUSTES FOSSILIS* (BLOCH)

THESIS SUBMITTED TO THE KAKATIYA UNIVERSITY
FOR THE AWARD OF THE DEGREE OF

Doctor of Philosophy

IN

ZOOLOGY

By

BHEEM RAO THATIPARTI

M.S.c., NET.

Under the Supervision of

Dr. VENKAIAH YANAMALA

Assistant Professor

DEPARTMENT OF ZOOLOGY
KAKATIYA UNIVERSITY
WARANGAL - 506 009, (T.S.), INDIA

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EFFECT OF METHYL PARATHION (AN ORGANOPHOSPHATE) ON BIOCHEMICAL CONTENTS OF FRESH WATER CAT FISH *HETEROPNEUSTES FOSSILIS* (BLOCH)

T. Bheem Rao, K. Thirupathi and Y. Venkaiah *

Department of Zoology, Kakatiya University, Waranagal - 506009, Telangana, India.

Keywords:

H. fossilis, Proteins, Carbohydrates, Ninhydrine positive substances, Methyl parathion, Organophosphate

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ABSTRACT: The present work was planned to study the effect of methyl parathion an organophosphate compound (OP) on biochemical contents of fresh water cat fish *Heteropneustis fossilis*. The exposure of fish to the sub-lethal concentrations of the toxicant methyl parathion was investigated and the variations were observed in biochemical contents in different tissues of the fish *i.e.* gill, liver, intestine, muscle and brain. The quantitative variations were observed in proteins, carbohydrates and ninhydrine positive substances at different time intervals *i.e.* 24, 48, 72 and 96 h. The results revealed that the components of proteins, carbohydrates and ninhydrine positive substances were found to be decreased significantly at different time intervals of methyl parathion exposure to different tissues of fish compared to control. The maximum decrease in proteins followed by ninhydrine positive substances (free amino acids) and carbohydrates was observed at 72 h and 96 h compared to 24 h and 48 h in different tissues of the fish *H. fossils*. Thus, our present investigation reports that the changes observed were depending on period of exposure of fish to the concentration of methyl parathion.

INTRODUCTION: Pesticides are used worldwide in aquaculture and agriculture to control the insects, pests and other vectors [1], which ultimately find their way into aquatic habitats like rivers, lakes and ponds. The environmental quality is determined by the assessing to toxicity of different chemicals to fish and other aquatic organisms. They ultimately enter the organisms through food webs and also through contact in water [2, 3]. Most of the chemicals used as pesticides are acutely toxic to many non-target organisms such as invertebrates, birds, mammals and fishes especially those inhibiting the marine environment [4, 5, 6].

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Some of the pesticides have been reported to persists the environment and tend to bio-accumulation in organisms [7]. It has been reported that pesticides can be actively toxic to fish [8, 9, 10, 11, 12, 13, 14]. Pesticide toxicity to fish has been investigated in several studies [15, 16]. Usage of pesticides in the ecosystem leads to development of various types of morphological, physiological, biochemical and behavioral changes in individual [17].

Hence it is necessary to study the immediate effect of pesticides on fish which forms a part of human diet. Among these pesticides, organophosphate compounds (OP's) are commonly used insecticides, which maintain less toxicity, persistence and also rapid biodegradability in the environment [18]. Methyl Parathion (0, 0 -di methyl-0-4 nitro phenyl phosphoro thioate)-Bayer (Germany) is a synthetic Organophosporous pesticide, known to be toxic to fish [19] and insects [20] and applied abundantly in agriculture [21].

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Research Article

Comparative Study Of Electrophoretic Patterns Of Esterases In Various Tissues Of Fresh Water Cat Fish *Heteropneustes Fossilis* (Bloch

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Electrophoresis, esterase isozyme, PAGE, α-napthyl acetate, H.fossilis

ABSTRACT

The present study was carried out to investigate the comparative study of electrophoretic patterns of esterases extracted from various tissues i.e. gill, liver, intestine, muscle and brain of fresh water cat fish *Heteropneustes fossilis* (Bloch). The qualitative analysis of esterase isozymes were examined on 7.5% native polyacrylamide gel electrophoresis (PAGE) stained with α-napthyl acetate as substrate. Altogether 4 esterase bands were named as Est-1 (0.6 ±0.05), Est-2 (0.4 ±0.05), Est-3 (0.3±0.05), Est-4 (0.15 ±0.05) were observed with different relative mobility. Est-2, Est-3, Est-4were found in gill, muscle, brain and liver where as all the four were found in intestine. Among the four esterases Est-3 is found to be more abundant in all the tissues tested with the highest intensity found in liver followed by intestine, gill, brain and muscle. Thus our present investigation reveals that all the four tissues of *H. fossilis* is rich in esterases.

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EFFECT OF METHYL PARATHION (AN ORGANOPHOSPHATE) ON ELECTROPHORETIC PATTERNS OF PROTEINS IN GILL AND MUSCLE OF FRESH WATER CAT FISH *HETEROPNEUSTES FOSSILIS* (BLOCH)

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Department of Zoology, Kakatiya University, Warangal.

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Warangal.

ABSTRACT

The present study was carried out to determine the effect of Methyl parathion (an organophosphate) on electrophoretic patterns of proteins in the gill and muscle of freshwater cat fish *H.fossilis* (Bloch). The fish were exposed to 2% sub lethal concentration of pesticide Methyl parathion at different time intervals i.e. 24 h; 48 h; 72 h and 96 h for a period of 10 days. The changes in the tissue proteins of vital organs such as gill and muscle were examined on 7.5% of SDS –PAGE. The protein patterns indicated that the muscle has higher number of protein bands compared to gill and control. The number of protein bands observed in gill of test fishes were found to be lesser than the muscle control. The protein banding patterns were identified by standard marker protein and Rm values were calculated accordingly. The results of the present study of electrophoretogram of both gill and muscle showed homology in protein bands with minor variations.

KEYWORDS: Protein patterns, Methyl parathion, SDS –PAGE, *H. fossilis*.

INTRODUCTION

Pesticide usage is a critical concern because it has an adverse effect on the delicate ecosystem. The transfer of the pesticides to the aquatic ecosystem creates a need to fully understand their effect in the resident biota.[1] In many areas the sensitive ecosystems are at risk because of point source runoff pesticides from agricultural and urban sources to aquatic ecosystems affecting aquatic biota.[2,3] Pesticide pollution severely affects aquatic organisms and organisms at high tropic levels including human beings through food chain[4,5] These