



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **TAZMIN AHMED** bearing **Roll no. 17/MSZ/001** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled "*TRADITIONAL IVORY CURVING IN BARPETA AND ITS CONSERVATION RELATED ISSUES*" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

*Prabal Sarkar*  
**Dr. Prabal Sarkar**  
**Supervisor**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**

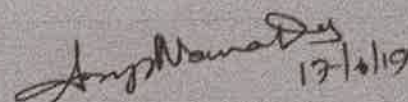


University of Science and Technology, Meghalaya  
Techno City, Baridua, 9<sup>th</sup> mile, Ri-bhoi, 793101, Meghalaya

### Certificate

This is to Certify that NEINGAM KONYAK student of M.Sc. 4<sup>th</sup> Semester has satisfactorily completed the project work under my guidance in the Department of Zoology, USTM that the post graduate research Project entitled "ICHTHYOFAUNAL DIVERSITY OF LAPA LAMPONG, TIZIT, MON, NAGALAND" submitted by NEINGAM KONYAK is a record of research work carried out by her under the guidance and supervision of me in the fulfilment of the award of Master in Science with specialization in '**Animal Ecology and Wildlife Biology**'. The research output contained in her thesis is the outcome of her continuous efforts. This certificate is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any other degree or diploma as such by any other University or Organisation or Institution.

Moreover, NEINGAM KONYAK is an honest, dedicated and conscientious research and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
17/6/19

MR. ARUP NAMA DAS

Assistant Professor

Department of Zoology

School of Biological Science

USTM

Date: 17-6-2019





HOD  
Department of Zoology  
University of Science and Technology Meghalaya



Registrar  
University of Science & Technology,  
Meghalaya





Unveiling Excellence

Department of Zoology

University of Science and Technology, Meghalaya

Techno city, Killing road, 9<sup>th</sup> Mile, Ri-Bhoi

Mr. Sudipta Nag

Assistant Professor, USTM

### CERTIFICATE

I have the pleasure to certify that the post graduate research project entitled "A Comparative study of activity budgeting and diet preference of rhesus macaque in Basistha temple" submitted by Miss Karishmita Hazarika is a record of benefit research work carried out by her under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)



*[Signature]*  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**Unveiling Excellence**

**Department of Zoology**

**University of Science and Technology, Meghalaya**

**Techno city, Killing road, 9<sup>th</sup> Mile, Ri-Bhoi**

**Mr. Sudipta Nag**

**Assistant Professor, USTM**

### **CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled **"Study on the Butterfly Diversity of Garbhanga Reserve Forest"** submitted by **Shri Debojit Bhumij** is a record of bonafide research work carried out by him under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

**(Mr. Sudipta Nag)**

**Project supervision**

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



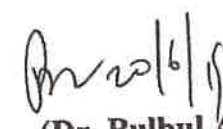
**UNIVERSITY OF SCIENCE & TECHNOLOGY MEGHALAYA**  
**Techno – City Baridua, 9<sup>th</sup> Mile, Ri- Bhoi -973101, Meghalaya**

**CERTIFICATE**

I have the pleasure to certify that the Post Graduate research project work entitled  
**“A SURVEY ON THE FISH DIVERSITY OF BARLIA RIVER, RANGIA IN THE  
KAMRUP (R) DISTRICT OF ASSAM”**

Submitted By Safika Begum is record of bonafied research Work Carried out by her under my guidance and supervision in the fulfillment of the award of Master of Science with specialization in “Fish and Fishery Biology”. The research outputs contained in her thesis in the out come of her continues efforts. This certification is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any other degree of this University or any other Institute.

  
Signature of the External Examiner

  
(Dr. Bulbul Acharjee)  
Signature of the Project Supervisor



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



SCHOOL OF BIOLOGICAL SCIENCE  
UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA  
TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101.



CERTIFICATE

This is to certify that FREBIOUS A SANGMA student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "DIVERSITY OF BEETLES (ORDER: COLEOPTERA) IN KHANTOLGURI, NORTH GARO HILLS DISTRICT, MEGHALAYA" submitted by FREBIOUS A SANGMA is a record of research work carried out by him under the supervisor of me in the fulfillment of the award of Master in Science with specialization in "ENTOMOLOGY". The research outputs contained in his dissertation is the outcome of his continuous efforts. This certification is made in the sense that the work complied and presented in his dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, FREBIOUS A SANGMA is an honest, dedicated and he possesses a very good moral character. I wish him a bright, prosperous and successful future.

Date: 20/06/17

*P. Kakoti*  
20.06.17  
Dr. Rashmimala Kakoti

Professor

Department of Zoology

School of Biological Science, USTM

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

**Dr. Dipankar Dutta**

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**An account of Distribution of Phytoplankton and the seasonal variation of physio-chemical parameters of USTM pond**" is a compilation of the results of work carried out by **Ms. Shahnaz Parbin Haque (Roll No. 17/MSZ/07)**, Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Shahnaz Parbin Haque** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.



(DIPANKAR DUTTA)  
Dissertation Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

Head  
Department of Zoology  
University of Science and Technology Meghalaya



## DEPARTMENT OF ZOOLOGY

University of Science and Technology, Meghalaya  
9th Mile, Ri-Bhoi, Meghalaya, INDIA.

Syed Rizaul Karim Ahmed, Date:  
Assistant professor, Department of Zoology

### Certificate

This is to certify that the dissertation work entitled "A field study on distribution of ABO blood group and presence of rare blood group Bombay (Oh) phenotype if any, among the people of Bongaigaon district, Assam, India" submitted for partial fulfillment of the award for the degree of Master of Science (M.Sc.) in Zoology with specialization in Cell and Molecular Biology in University of Science and Technology, Meghalaya. This dissertation work has done by Mr. Hafiz Uddin Ahmed, M.Sc. 4<sup>th</sup> semester bearing Roll No. 17/MSZ/08 and Enrollment No. PG/2017/03023, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.

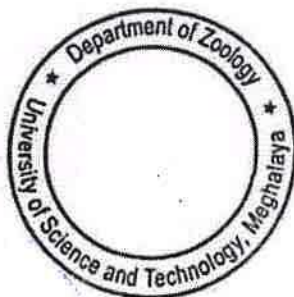
*I wish him all success in life.*

Place: USTM, Meghalaya

(SYED RIZAUL K. AHMED)

Assistant Professor,

Department of Zoology, USTM



HOD

Department of Zoology

University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya





## Certificate

This is to certify that the thesis entitle "**Study On Mutant Varieties of *Drosophila melanogaster* in Goalpara District**" is a compilation of the result of research work carried out by Meheboob Ali Ahmed (17/MNSZ/09) under my guidance and supervision.

Meheboob Ali Ahmed is a bona fide M.sc fourth semester student of the department of the Zoology of this university. His work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master of Science in Zoology of this University.



  
13/06/18.

Rizaul Karim Ahmed

Asst. Professor of Department of Zoology

School of Biology Science, USTM

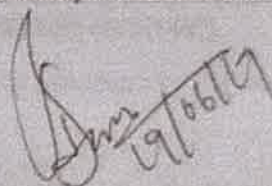
  
Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

### CERTIFICATE

This is to certify that MURSIDA AKHTAR a student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "DIVERSITY OF BUTTERFLY IN RANGHA AREA" submitted by MURSIDA AKHTAR is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in "INSECT PHYSIOLOGY AND ECONOMIC ENTOMOLOGY". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.



Date:

Dr. BAKHTIAR HUSSAIN

Assistant Professor

Department of Zoology

School of Biological Science, USTM.



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

**University of Science and Technology, Meghalaya**

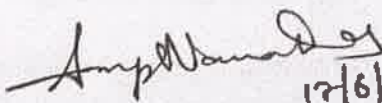
**Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya**



**Certificate**

This is to certify that **Antushree Patgiri** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**A Preliminary Survey on Comparison of feeding behaviour of Navagraha and Basistha temple**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Antushree Patgiri is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
12/6/19  
Mr. Arup Nama Das

Assistant Professor  
Department of Zoology

Date: 17-6-2019  
Place: USTM





Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

Department of Zoology, School of Biological Sciences

Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Kimty Das**

Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Diversity of fish found in the water bodies of Jonai sub division, Assam” is a compilation of the results of research work carried out by Ms. Kerumoni Kaman (M.Sc. Roll No. 17/MSZ/12) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

Dr. Kimty Das  
Assistant Professor, USTM



Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA**  
**DEPARTMENT OF ZOOLOGY**  
TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

**Dr. Dipankar Dutta**

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

**CERTIFICATE**

This is to certify that the dissertation entitled "**Comparative Biochemical Estimation of Protein having scale & non-scaled of two different Fish species of the genus *Mystus* (*M. tengara* & *M. bleekeri*) and the genus *Labeo* (*L. rohita* & *L. bata*)**" is a compilation of the results of work carried out by Ms. Shahida Ahmed (Roll No. 17/MSZ/13), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

Ms. Shahida Ahmed is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.

(DIPANKAR DUTTA)  
Dissertation Supervisor

University of Science & Technology,  
Meghalaya

**HOD**  
**Department of Zoology**  
University of Science and Technology Meghalaya

**SCHOOL OF BIOLOGICAL SCIENCE**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
**TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101, MEGHALAYA.**



**CERTIFICATE**

This is to certify that **NAZIM UDDIN AFZAL** student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under my guidance for the post graduate field study entitled **"DISTRIBUTION OF ABO BLOOD GROUP AND PRESENCE OF RARE BLOOD GROUP "BOMBAY(O<sub>h</sub>)" if any PHENOTYPE AMONG THE PEOPLE OF GOALPARA DISTRICT , ASSAM**

" The dissertation submitted by **NAZIM UDDIN AFZAL** is a record of research work carried out by him under the supervision of me in the fulfillment of the award of Master in Science with specialization in **CELL AND MOLECULAR BIOLOGY**. The research outputs contained in his dissertation is the outcome of his continuous efforts. This certification is made in the sense that the work complied and presented in his dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, **NAZIM UDDIN AFZAL** is an honest, dedicated and he possesses a very good moral character. I wish him a bright, prosperous and successful future.

Date: 20/6/19



  
**Mr. Syed Rizaul Karim Ahmed**

Assistant Professor

Department of Zoology

School of Biological Science, USTM.



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**University of Science and Technology, Meghalaya**  
**Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya**



**Certificate**

This is to certify that Parash Pratim Barman student of M.Sc 4<sup>th</sup> Semester has satisfactorily completed the research project entitled "Study of Population Growth of Parasites and Predators of Muga Silkworm (*Antheraea assama*) and Pests of Som Plant (*Machilus bombycina*) at Adverse Environmental Conditions" under my guidance and supervision in the fulfillment of the award of Master in Science with specialization in "Entomology". The research contained in his thesis is the outcome of his continuous effort. The certification is made in the sense that the works complied and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Parash Pratim Barman is an honest, dedicated and conscientious researcher and he possesses a very good moral character. I heartily wish him a bright, prosperous and successful future

*R. Kakati*  
19.06.19

Dr. Rashmimala Kakati

Professor

Department of Zoology

Date:

School of Biological Science, USTM

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**Unveiling Excellence**

**Department of Zoology**

**University of Science and Technology, Meghalaya**

**Techno city, Killing road, 9<sup>th</sup> Mile, Ri-Bhoi**

**Mr. Sudipta Nag**

**Assistant Professor, USTM**

**CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled "Seasonal variation of physico-chemical parameters of water in three historic ponds in Guwahati city with reference to their Zooplankton distribution" submitted by Miss Parismita Phukon is a record of bonafied research work carried out by her under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)

**Project supervision**



*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned by CamScanner

Scanned with CamScanner



UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA  
Techno city Baridua, killing road, 9<sup>th</sup> mile, Dist-Ri -Bhoi, 793101



Unveiling Excellence

### CERTIFICATE....

This is to certify that the dissertation entitled "EVALUATION OF INITIATION STAGES OF CHITIN SYNTHESIS IN EXOSKELETON OF COCKROACHES(P. americana)" is a record of research work done by BANJITA BARUAH bearing Roll No -17/MsZ/18 submitted to UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA in partial fulfillment of the requirement of MSc 4<sup>th</sup> semester, Department Zoology and that the dissertation has not previously formed the basis of any other dissertation work for any other students or research work for any other scholar and that the dissertation represents independent and original work on the part of the candidate under my guidance.

R. Kakati  
19.06.19  
Dr. Rashmimala Kakati  
(~~Associate~~ Professor)

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*


This is to certify that **NEKIBUDDIN AHMED** bearing **Roll no. 17/MSZ/020** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. He has successfully carried out the dissertation entitled "**HABITAT PREFERENCES OF BUTTERFLY IN BOKO AREA OF ASSAM**" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on his observation and not submitted for any other degree in any other institute.

*Prabal Sarkar.*

**Dr. Prabal Sarkar**

**Supervisor**

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

  
Registrar  
University of Science & Technology,  
Meghalaya



## UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA

(Established under Act 6 of 2008 enacted by the state Legislative Assembly of Meghalaya & Incorporated under Section 22 & 2 (f) of the UGC Act 1956)

### Certificate

This is to certify that **WORLDSRANG T SANGMA**, a student of M.sc 4<sup>th</sup> Semester bearing Roll No.17/MSZ/21 of the Department of Zoology, University of Science & Technology Meghalaya has successfully completed her dissertation entitled, "**Bionomics of two stored grain pest(Sitophilus Oryzae and Tribolium Castaneum) from West Garo Hills**" towards the partial fulfillment of Master of Science in Zoology, University of Science & Technology Meghalaya under my supervision.

To the best of my knowledge and belief the work is based on the investigations made, data collected and analyzed by him, therefore, is a genuine record of independent and bonafide research work done by him.

Date: 20, 06, 19



*R. Kakoti*

Dr. Rashmimala Kakoti

Supervisor

Department of Zoology

University of Science & Technology, Meghalaya

Techno City, Kling Road, Baridua, 9<sup>th</sup> Mile, R-Bhoi, Meghalaya - 786101 Ph. 0361-2895030  
(Telefax) 0361-23060, E-mail: [ustm2011@gmail.com](mailto:ustm2011@gmail.com), [www.ustm.ac.in](http://www.ustm.ac.in)

*[Signature]*  
Registrar  
University of Science & Technology  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA  
TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101, MEGHALAYA.



### CERTIFICATE

This is to certify that **AMAR DEBNATH** student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under my guidance for the post graduate research project entitled "**PROTEIN CONTENT OF SOME PREFERRED INSECTS BY TRIBAL COMMUNITIES OF BAKSA DISTRICT, BTAD, ASSAM.**" The dissertation submitted by **AMAR DEBNATH** is a record of research work carried out by him under the supervision of me in the fulfillment of the award of Master in Science with specialization in **ENTOMOLOGY**. The research outputs contained in his dissertation is the outcome of his continuous efforts. This certification is made in the sense that the work complied and presented in his dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, **AMAR DEBNATH** is an honest, dedicated and he possesses a very good moral character. I wish him a bright, prosperous and successful future.

Date: 19/06/19

A handwritten signature in dark ink, appearing to read 'Borphukan'.

**Dr. Alike Borphukan Borah**

Assistant Professor

Department of Zoology

School of Biological Science, USTM.







**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Kimty Das**  
Assistant Professor

### **CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Rongkai River, Meghalaya” is a compilation of the results of research work carried out by Ms. Rikginchi Marak (M.Sc. Roll No. 17/MSZ/23) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

DEPARTMENT OF ZOOLOGY

TECHNO-CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA-793101

**Dr. ALIKA BORPHUKAN BORA**

Assistant Professor,

Department of Zoology

University of Science & Technology, Meghalaya

Phone: +91 8638573962, +91 9854012154

Email: alikanandask@yahoo.com

Date: 18/06/19

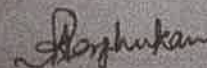
### Certificate

This is to certify that the dissertation entitled "**COMPARATIVE STUDIES ON LARVAL WEIGHT AND SHELL RATIO OF ERI SILKWORM(*Samia ricini*) REARED WITH CASTOR(*Ricinus communis*) AND VITAMIN D<sub>3</sub> ENRICHED DIET**" is a compilation of the results of work carried out by **CHINMOYEE GOGOI** (Enrolment No. PG/2017/03216, Roll No. 17/MSZ/24), Department of zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**CHINMOYEE GOGOI** is a bonafied student of M.Sc Zoology 4<sup>th</sup> semester with Entomology as his Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/ Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of **Master in Science in Zoology** (under the School of Biological Science) of University of Science and Technology, Meghalaya.

Wish her all success in life.

  
(Alike Borphukan Bora)  
Dissertation  
Supervisor

  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned by CamScanner



Developing Excellence

# UNIVERSITY OF SCIENCE & TECHNOLOGY MEGHALAYA

(Established under Act 6 of 2008 enacted by the state Legislative Assembly  
of Meghalaya & Incorporated under section 22 & 2(f) of the UGC Act 1956)

## CERTIFICATE

Date:

This is to certify that Rabina Begum, a student of M.sc 4<sup>th</sup> Semester bearing Roll No. 17/MSZ/25 of the Department of Zoology, University of Science & Technology, Meghalaya has successfully completed her dissertation entitled, "A Study on The Prevalence of Anemia Among Girls Residing in Hostels/PG" towards the partial fulfillment of the degree of Master of Zoology of University of Science & Technology, Meghalaya, under my supervision.

To the best of my knowledge and belief the work is based on the investigations made, data collected and analyzed by her and, therefore, is a genuine record of independent and bonafide research work done by him.

RIZAVUL  
SYED REJAVUL KARIM AHMED

Assistant Professor

Department of Zoology

University of Science & Technology, Meghalaya

Techno City, Killing Road, Baridua, Ri-Bhoi, Meghalaya-79310

Ph- 0361-2895030, E-mail: [ustm2011@gmail.com](mailto:ustm2011@gmail.com), website: [www.ustm.ac.in](http://www.ustm.ac.in)

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya







# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

**Dr. Dipankar Dutta**

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled “Comparative Biochemical Estimation of Protein having scale & non-scaled of two different Fish species of the genus *Anabas* (*Anabas testudineus* & *Anabas cobojus*) and the genus *Ompok* (*Ompok pabda* & *Ompok bimaculatus*)” is a compilation of the results of work carried out by **Ms. Razia Sultana** (Enrollment No. PG/2017/03239, Roll No. 17/MSZ/26), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Razia Sultana** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.



**DIPANKAR DUTTA)**  
Dissertation Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

**SCHOOL OF BIOLOGICAL SCIENCE**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
**TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101,**  
**MEGHALAYA.**



**CERTIFICATE**

This is to certify that NAMBE K. SANGMA student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "DIVERSITY OF COLEOPTERA IN USTM CAMPUS, RI-BHOI DISTRICT, MEGHALAYA" submitted by NAMBE K. SANGMA is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in "INSECT PHYSIOLOGY AND ECONOMIC ENTOMOLOGY". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, NAMBE K. SANGMA is an honest, dedicated and she possesses a very good moral character. I wish her a bright, prosperous and successful future.

Date: 10/06/19



**Dr. Alike Borphukan Borah**

Assistant Professor

Department of Zoology

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology, Meghalaya



SCHOOL OF BIOLOGICAL SCIENCE  
UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA  
TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101, MEGHALAYA.



### CERTIFICATE

This is to certify that MAHMUDA KAKATI student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "DIVERSITY OF VEGETABLE INSECT PEST IN BAMUNBARI AREA, NALBARI DISTRICT, ASSAM" submitted by MAHMUDA KAKATI is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in " INSECT PHYSIOLOGY AND ECONOMIC ENTOMOLOGY". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work compiled and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

*A. Borphukan*

Dr. Alike Borphukan Borah

Assistant Professor

Department of Zoology

School of Biological Science, USTM.



*[Signature]*

Registrar  
University of Science & Technology  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology Meg.





**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **TRIBENI HAZARIKA** bearing **Roll no. 17/MSZ/029** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled **"BUTTERFLY DIVERSITY IN USTM CAMPUS OF MEGHALAYA"** under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

*Prabal Sarkar.*

**Dr. Prabal Sarkar**  
**Supervisor**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **LAKHYA CHUMPI BORA** bearing **Roll no. 17/MSZ/030** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled **"MOTH DIVERSITY IN GOLAGHAT DISTRICT OF ASSAM"** under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

*Prabal Sarkar.*

**Dr. Prabal Sarkar**  
**Supervisor**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**

**SCHOOL OF BIOLOGICAL SCIENCE**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
**TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI 793101, MEGHALAYA.**

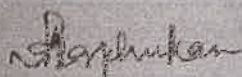


**CERTIFICATE**

This is to certify that BIDISHA DUTTA student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "SPECIES COMPOSITION, ABUNDANCE AND DIVERSITY OF GRASSHOPPER (INSECTA: ORTHOPTERA) IN USTM CAMPUS, RI-BHOI DISTRICT, MEGHALAYA" submitted by BIDISHA DUTTA is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in " INSECT PHYSIOLOGY AND ECONOMIC ENTOMOLOGY". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, BIDISHA DUTTA is an honest, dedicated and she possesses a very good moral character. I wish her a bright, prosperous and successful future.

Date: 18/06/19

  
Dr. Alike Borphukan Borah

Assistant Professor

Department of Zoology

School of Biological Science, USTM.



  
University of Science & Technology, Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA-793101

Dr. ALIKA BORPHUKAN BORA

Assistant Professor,

Department of Zoology

University of Science & Technology, Meghalaya

Phone: +91 8638573962, +91 9854012154

Email: [alikanandask@yahoo.com](mailto:alikanandask@yahoo.com)

Date: 18/06/19

### Certificate

This is to certify that the dissertation entitled "INFLUENCE OF VITAMIN C ON LARVAL WEIGHT AND SHELL RATIO OF ERI SILKWORM (*Samia ricini*)" is a compilation of the results of work carried out by Mr. ASHIQUDDIN AHMED (Enrolment No. PG/2017/03278, Roll No. 17/MST/33), Department of zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

ASHIQUDDIN AHMED is a bonafide student of M.Sc Zoology 4<sup>th</sup> semester with Entomology as his Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/ Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (Under the School of Biological Science) of University of Science and Technology, Meghalaya.

Wishing him all success in life.

(Alike Borphukan Bora)

Dissertation

Supervisor

University of Science & Technology  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned by CamScanner



UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**CERTIFICATE**

This is to certify that the thesis entitled “Study of diversity of vegetable pests in Kamrup district of Assam” is a compilation of the results of research work carried out by Ms. Amina Khatun (M.Sc. Roll No. 17/MSZ/34) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

R. Kakati  
19.06.19

Dr. Rushmimala Kakati

Professor

Department of Zoology

School of Biological Science, USTM

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

**University of Science and Technology, Meghalaya**  
**Techno City, Baridua, 9<sup>th</sup> mile, Ri bhoi 793101, Meghalaya**




**CERTIFICATE**

This is to certify that the research entitled "**Protein Content of *Labro rohita* (Hamilton) in fresh, refrigerated and sundried condition**" submitted in partial fulfillment for the award of M.Sc. Degree in Biological Sciences with Specialization in Cell and Molecular Biology of the University of Science and Technology, Meghalaya, is a record of the bonafied research work carried out by **Upasana Sarma** under my guidance and supervision. The certification is made in the sense that the works complied and presented in this thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

All the help and assistance received during the course of investigation have been duly acknowledged.



  
D.K.Sharma

Professor

Department of Zoology

School of Biological Sciences

USTM

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

Department of Zoology, School of Biological Sciences

Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Bulbul Acharjee**

Associate Professor

**CERTIFICATE**

This is to certify that the thesis entitled “*Fish Diversity of Aie River, Assam*” is a compilation of the results of research work carried out by Ms. Jemifa Wahid Mondal (M.Sc. Roll No. 17/MSZ/36) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

Signature

Dr. Bulbul Acharjee  
Associate Professor, USTM



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Bulbul Acharjee**  
Associate Professor

### **CERTIFICATE**

This is to certify that the thesis entitled "*Fish Diversity of Kapla Beel, Barpeta, Assam*" is a compilation of the results of research work carried out by Ms. Dimpal Kalita (M.Sc. Roll No. 17/MSZ/37) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

  
Signature

**Dr. Bulbul Acharjee**  
Associate Professor, USTM





**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

  
Registrar  
University of Science & Technology,  
Meghalaya



Department of ZOOLOGY  
University of Science and Technology,  
**Meghalaya**

---

### CERTIFICATE

*This is to certify that the dissertation " TOXICOLOGICAL EFFECT OF MERCURY CHLORIDE ON *Clarias batrachus* NEAR THE CITY GUWAHATI, KAMRUP DISTRICT, ASSAM". submitted by NILIMA KHATUN 17/msz/38. Department of zoology, University of Science and Technology, Meghalaya embodies the result of his original work and personal investigation carried out under my supervision and guidance. The work as a whole or part thereof has not been submitted for any degree elsewhere.*



*Wanaz N Islam*  
12/6/19

SUPERVISOR

(MRS. WANAZ N ISLAM)

*[Signature]*

Department of Zoology  
University of Science and Technology,  
Meghalaya

*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya





Department of Zoology  
University of Science and Technology,  
Meghalaya

## CERTIFICATE

This is to certify that the dissertation "AQUATIC INSECT DIVERSITY OF CHAULKHOWA RIVER OF CHIKARBHITA AREA OF BARPETA DISTRICT", Submitted by HENA YESMIN, 17/MSZ/40, Department of zoology, University of Science and Technology, Meghalaya embodies the result of his original work and personal investigation carried out under my supervision and guidance. The work as a whole or part thereof has not been submitted for any degree elsewhere.

All the help and assistance received during the course of investigation have been duly acknowledged.



Date:

Place:

DR. BAKTIAR HUSSAIN

Associate Professor

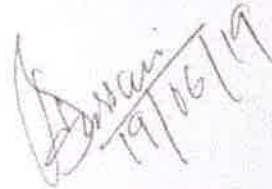
Department of Zoology, USTM

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

## CERTIFICATE

This is to certify that RAKIBUL ISLAM, a student of M.Sc.4<sup>th</sup> semester bearing Roll No.-17/MSZ/41, has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "**A STUDY ON GRASSHOPPER OF HOWLY AREA, BARPETA, ASSAM**". The same submitted by RAKIBUL ISLAM is a record of research work carried out by him under the supervision of me for the fulfillment of the award of Master in science with specialization in "ENTOMOLOGY". The research output contained in the thesis is the outcome of his continuous efforts.




(Dr. Bakhtiar Hussain)  
Associate Professor  
Dept. of Zoology, USTM

Scanned with CamScanner



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

### Dr. Dipankar Dutta

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**An Account of Seasonal variation of Water Physiochemistry and Zooplankton Fauna in the USTM pond, Ri-Bhoi Meghalaya**" is a compilation of the results of work carried out by **Mr. Firdous Ul Kabir Mollah (Enlloment No. PG/2017/03340, Roll No. 17/MSZ/42)**, Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Mr. Firdous Ul Kabir Mollah** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish him all success in life.



(DIPANKAR DUTTA)  
Dissertation Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

Head  
Department of Zoology  
University of Science and Technology Meghalaya





## UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

(Established Under Act No.6 of 2008 enacted by the state Legislative Assembly  
Meghalaya and incorporation under Section 22 & 2 (f) of the UGC Act 1956)

### Department of zoology

Mrs. Wanaz Nasreen Islam

Asst. Professor, Cell and Molecular Biology

### Certificate by the Supervisor

I certify that the project entitled "A COMPARATIVE STUDY ON HAEMATOLOGICAL VALUES OF BLOOD OF INDIGENOUS AND BROILER CHICKEN" submitted by Ms.Devi Ngute, Roll No:17/MSZ/43, EXAM ID: 19241017, to the Department of Zoology, USTM in partial fulfilment of M.Sc. degree embodies the record of original investigation carried out by her under my supervision. To the best of my knowledge, the Project embodies account for her own findings and has not been submitted previously anywhere for any degree whatsoever by either her or anyone else.



Dated: 20/06/19

Place: Techno City, 9<sup>th</sup> Mile, Ri- Bhoi

*Islam*  
19/6/19  
Mrs Wanaz Nasreen Islam

*Islam*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*Uth*  
Registrar  
University of Science & Technology,  
Meghalaya



# UNIVERSITY OF SCIENCE AND TECHNOLOGY

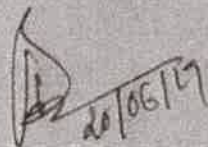
## MEGHALAYA

(Established under Act 6 of 2008 enacted by the state Legislative Assembly of Meghalaya & Incorporated under Section 22 & 2 (f) of the UGC Act 1956)

### CERTIFICATE

This is to certify that DECKYSON M. MARAK, a student of M.sc 4<sup>th</sup> Semester bearing Roll No.17/MSZ/45 of the Department of Zoology, University of Science & Technology Meghalaya has successfully completed her dissertation entitled, "A Study of Coleoptera in 8<sup>th</sup> Mile and 9<sup>th</sup> Mile Area, Assam" towards the partial fulfillment of Master of Science in Zoology, University of Science & Technology, Meghalaya under my supervision.

To the best of my knowledge and belief the work is based on the investigations made, data collected and analyzed by him, therefore, is a genuine record of independent and bonafide research work done by him.

  
20/06/17

Date:-

Dr. Bakhtiar Hussain

Supervisor

Department of Zoology

University of Science & Technology, Meghalaya



Techno City, Kling Road, Baridua, 9<sup>th</sup> Mile, R-Bhoi, Meghalaya - 793101

Ph: 0361-2895030 (Telefax), 098540-23060, E-mail: [ustm2011@gmail.com](mailto:ustm2011@gmail.com), website-

[www.ustm.ac.in](http://www.ustm.ac.in)

  
Registrar  
University of Science & Technology  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





University of Science and Technology, Meghalaya

## Certificate

*This is to certify that the dissertation work entitled "A field study on distribution of ABO blood group and presence of rare blood group "Bombay (Hh) phenotype" if any, among the people of Barpeta district, Assam, India". Submitted for partial fulfillment of the award for the degree of Master of Science in Zoology with specialization in Cell and Molecular Biology of University of Science and technology, Meghalaya. This dissertation work has done by Mr. Md Abul Kalam Azad Bhuyan, M.Sc. 4<sup>th</sup> semester bearing Roll No. 17/MSZ/46 and Enrollment No. PG/2017/03376, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.*

*I wish him all success in life.*



**Mr. SYED RIZAUL K. AHMED**

Assistant Professor  
Department of Zoology  
USTM



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**University of Science and Technology, Meghalaya**  
**Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya.**



### **Certificate**

This is certify that **Divya Sonar** student of M.Sc 4<sup>th</sup> Semester has satisfactorily completed the research project entitled "**STUDY OF AVIAN FAUNA DIVERSITY IN BRAMHAPUTRA, ASSAM**" under my guidance and supervision in the fulfilment of the award of Master in Science with specialization in "**Animal Ecology & Wildlife Biology**". The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis has hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organisation or Institution.

Moreover, **Divya Sonar** is an honest, dedicated and conscientious researcher and she posses a very good moral character. I heartily wish her a bright, prosperous successful future.

  
**Mr. Arup Nama Das** 17/6/17

Assistant Professor


Department of Zoology

School of Biological  
Science

**USTM**



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



## UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

University of Science and Technology, Meghalaya

Techno city, Baridua, 9<sup>th</sup> mile, Ri-Bhoi 793101, Meghalaya

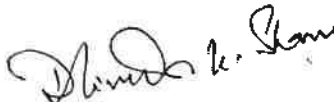
### Certificate

This is to certify that **RAJINA APTER** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the project work under my guidance in post graduate research entitled "**EVALUATION OF PROTEIN CONTENT IN FRESH, REFRIGERATED AND DRIED *Labeo bata* (Hamilton, 1822)**" submitted by **Rajina Apter** is a record of research work carried out by her under guidance and supervision of me in the fulfillment of the Master in Science with specialization in "**Cell and Molecular Biology**". The research output contained in her thesis is the outcome of his continuous efforts. The certification is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any other degree or diploma as such by any other University or Organisation or Institution.

Moreover, **RAJINA APTER** is an honest, dedicated and conscientious student and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

Date: 19/06/19

Place: USTM

  
Prof. D.K. Sharma

Professor

Department of Zoology

School of Biological Science



  
**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

  
Registrar  
University of Science & Technology,  
Meghalaya



# UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

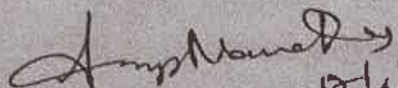
Techno city, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



## CERTIFICATE

This is to certify that Pilpili Bathari student of M.sc 4<sup>th</sup> semester has satisfactorily completed the research project entitled " Fish Diversity Of Diyung River, Diyungbra, Dima Hasao" under my guidance and supervision in the fulfillment of the award of Master in Science with specialization in "Animal Ecology & Wildlife Biology". The research output contained in her thesis is the outcome of her continuous effort. the certification is made in the sense that works compiled and presented in her thesis hasn't formed the basis for the award of any degree or diplomas such by any other university or organization or institution.

Moreover, Pilpili Bathari is an honest, dedicated and conscientious researcher and she posses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
Mr. Arup Nama Das 12/10/17

Assistant professor

Department of Zoology

School Of Biological Science

USTM

Date: 17-10-2017

Place: LTM



  
Registrar  
University of Science & Technology  
Meghalaya

  
Head  
Department of Zoology  
University of Science and Technology Meghalaya





**Department of Zoology**  
**University of Science and Technology,**  
**Meghalaya**

**CERTIFICATE**

*This is to certify that the dissertation "toxicological effect of copper on Heteropneustes fossilis. near Guwahati city, kamrup district, Assam". Submitted by ABDUL KALAM AZAD, 17/msz/50. Department of zoology, University of Science and Technology, Meghalaya embodies the result of his original work and personal investigation carried out under my supervision and guidance. The work as a whole or part thereof has not been submitted for any degree elsewhere.*

**Head of the Department**  
**Supervisor**

3 | Page



*[Signature]*  
**HOD**  
**Department of Zoology**  
**University of Science and Technology, Meghalaya**

*[Signature]*  
**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **KRISHNAKSHI BARUAH** bearing **Roll no. 17/MSZ/051** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled **"IMPACT OF HABITAT DEGRADATION ON THE AVIAN DIVERSITY IN AND AROUND IIT, GUWAHATI, ASSAM, INDIA"** under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

*Prabal Sarkar.*

**Dr. Prabal Sarkar**  
**Supervisor**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**





### CERTIFICATE

This is to certify that APARAJITA BARMAN student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "STUDY OF PADDY PEST IN BARCHALA, SONITPUR DISTRICT, ASSAM" submitted by APARAJITABARMAN is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in "ENTOMOLOGY". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Date: 20/06/2019

Dr. Bakhtiar Hussain

Assistant Professor

Department of Zoology

School of Biological Science,  
USTM.



Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**CERTIFICATE**

This is to certify that the thesis entitled "Evaluation of pest infestations in the paddy fields of Barpeta district of Assam" is a compilation of the results of research work carried out by Ms. Farida Yesmin (M.Sc. Roll No. 17/MSZ/53) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

*R. Kakati*  
19.05.19

Dr. Rashmimala Kakati

Professor

Department of Zoology

School of Biological Science, USTM

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

### Dr. Dipankar Dutta

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**Study of Hematological and Blood Biochemical Parameters in Assam Hill Goat**" is a compilation of the results of work carried out by **Ms. Farhina Afrin Siddiqui (Roll No. 17/MSZ/54)**, Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Farhina Afrin Siddiqui** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.

(DIPANKAR DUTTA)  
Dissertation Supervisor



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



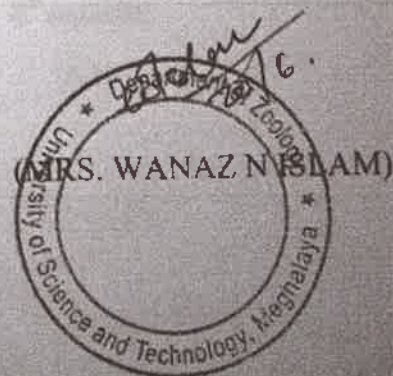
*Unveiling Excellence*

Department of ZOOLOGY  
University of Science and Technology,  
Meghalaya

CERTIFICATE

*This is to certify that the dissertation "COMAPARATIVE STUDY ON PROTEIN CONTENT OF FRESH AND FORMALIN TREATED Labeorohita". submitted by ELINA AKTARUN AHMED 17/msz/55. Department of zoology, University of Science and Technology, Meghalaya embodies the result of his original work and personal investigation carried out under my supervision and guidance. The work as a whole or part thereof has not been submitted for any degree elsewhere.*

Head of the Department  
Supervisor



*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya





**Unveiling Excellence**

**Department of Zoology**

**University of Science and Technology, Meghalaya**

**Techno city, Killing road, 9<sup>th</sup> Mile, Ri-Bhoi**

**Mr. Sudipta Nag**

**Assistant Professor, USTM**

### **CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled "**A Study on Butterfly Diversity in Garbhanga Reserve Forest**" submitted by Miss Priyanka Baruah is a record of bonafied research work carried out by her under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)

**Project supervision**



*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned with CamScanner

Scanned with CamScanner



University of Science and Technology, Meghalaya

## Certificate

*This is to certify that the dissertation work entitled "**The influence of the CADMIUM CHLORIDE on the muscle protein of Heteropneustes fossilis**" submitted for partial fulfillment of the award for the degree of **Master of Science (M.Sc.) in Zoology** with specialization in **Cell and Molecular Biology** of **University of Science and technology, Meghalaya**. This dissertation work has done by **Miss. Susmita Devi, M.Sc.4<sup>th</sup> semester** bearing **Roll No. 17/MSZ/57** and **Enrollment No. PG/2017/03446**, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.*

*I wish her all success in life.*



*Wanas N. Islam*  
20/6/19

**Wanas N. Islam**  
Assistant Professor  
Department of Zoology  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya





**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
Established under Act 6 of 2008 enacted by State Legislative Assembly of  
Meghalaya & incorporated under section 22 & 2 (f) of the UGC Act 1956

## **CERTIFICATE**

This is to certify that Rezina Ahmed bearing Roll no.: 17/MSZ/58 and  
Exam I.D: 19241031 is a bonafide student of 4<sup>th</sup> semester of the  
course M.Sc. Zoology in University of Science and Technology,  
Meghalaya. She has successfully carried out her dissertation entitled  
**"STUDY OF DRAGONFLY SPECIES IN AGOMANI AREA, DHUBRI  
DISTRICT"** under my supervision and guidance for the partial  
fulfilment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation  
and not submitted for any other degree to any other institute.



*[Signature]*  
19/06/19

**Dr. Bakhtiar Hussain**  
**Supervisor**



Vivo V11  
AI Dual Camera

2020.07.

*[Signature]*  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Kimty Das**  
Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Pagladia River, Assam” is a compilation of the results of research work carried out by Ms. Nikita Sarma (M.Sc. Roll No. 17/MSZ/59) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

**Registrar**  
University of Science & Technology,  
Meghalaya



University of Science and Technology, Meghalaya

## Certificate

This is to certify that the dissertation work entitled "*The toxicological impact of Cypermethrin on the muscle protein of Heteropneustes fossilis*" submitted for partial fulfillment of the award for the degree of **Master of Science (M.Sc.) in Zoology** with specialization in **Cell and Molecular Biology** of **University of Science and Technology, Meghalaya**. This dissertation work has done by **Sushruti Kashyap, M.Sc.4<sup>th</sup> semester** bearing **Roll No. 17/MSZ/060** and **Enrollment No. PG/2017/3453** under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.

*I wish her all success in life.*



*[Signature]*  
19/6/19

**Wanag N. Islam**  
Assistant Professor  
Department of Zoology,  
University of Science & Technology,  
Meghalaya

*[Signature]*

**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology  
Meghalaya



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **ANANYA CHAKRAVARTY** bearing **Roll no. 17/MSZ/061** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled "**PLAY BEHAVIOUR IN RHESUS MACAQUE**" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

*Prabal Sarkar*  
**Dr. Prabal Sarkar**  
**Supervisor**

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya





UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA DEPARTMENT OF ZOOLOGY  
TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

Dhirendra kumar sarma  
Assistant Professor ,Dept.of zoology  
University of Science & technology,Meghalaya

DATE- 19/06/2019

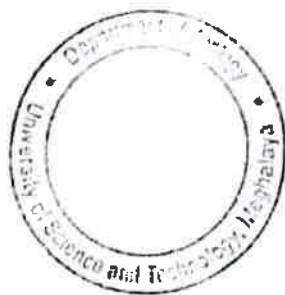
CERTIFICATE

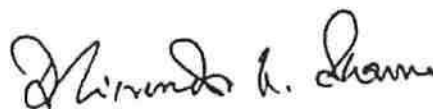
This is to certify that the dissertation entitled "ASSAY OF SOLUBLE PROTEIN IN FRESH, REFRIGERATED AND SUN DRIED FISH OF *Channa punctatus*" is a compilation of the results of work carried out by Mr./Ms. \_\_\_Nazmul Hoque (Enrollment No. PG/2017/03488 Roll No. 17/MSZ/62 ), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

Mr./Ms. \_\_\_NAZMUL HOQUE is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as his Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master In Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish his all success in life.



  
Dhirendra Kumar Sarma

Dissertation Supervisor

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

  
Registrar  
University of Science & Technology,  
Meghalaya

University of Science and Technology, Meghalaya

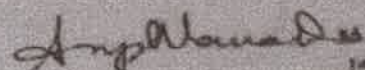
Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



### Certificate

This is to certify that **Saquiba Aziz** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**A Preliminary Survey on Avifaunal Diversity in Amchang Wildlife Sanctuary, Kamrup (Assam), North Eastern India**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Saquiba Aziz is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
Mr. Arup Nama Das

18-6-2019

Assistant Professor

Department of Zoology

School of Biological Science, USTM





HOD  
Department of Zoology  
University of Science and Technology Meghalaya

  
Registrar  
University of Science & Technology,  
Meghalaya



**University of Science and Technology, Meghalaya**

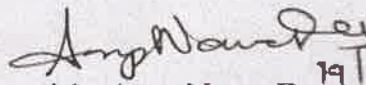
**Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya**



**Certificate**

This is to certify that **Biswajit Talukdar** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**Status and Habitat ecology of Fruit Bat in Orang, Udalguri District of Assam, North Eastern India**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in his thesis is the outcome of his continuous effort. The certification is made in the sense that the works compiled and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Biswajit Talukdar is an honest, dedicated and conscientious researcher and he possesses a very good moral character. I heartily wish him a bright, prosperous and successful future.

  
Mr. Arup Nama Das 19/6/19

Assistant Professor

Department of Zoology

**Date: 19-6-19**

**Place: USTM**

**School of Biological Science, USTM**



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





Leading Excellence

Department of Zoology

University of Science and Technology, Meghalaya

Techno city, Killing road, 9<sup>th</sup> mile, Ri-Bhoi

**Mr. Sudipta Nag**

Assistant Professor, USTM

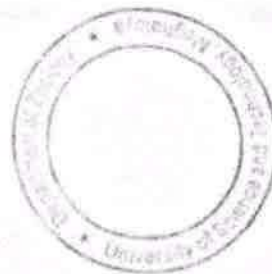
### CERTIFICATE

I have the pleasure to certify that the post graduate research project entitled "Use of animal products in making traditional medicine around Rangia of rural Kamrup district, Assam." submitted by MISS RUNA LAILA is a record of bonafied research work carried out by him under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

(Mr. Sudipta Nag)

*Sudipta Nag*

Project supervision



*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned with CamScanner

2019/12/4 14:11

REDMI NOTE 7 PRO  
48MP DUAL CAMERA

University of Science and Technology, Meghalaya

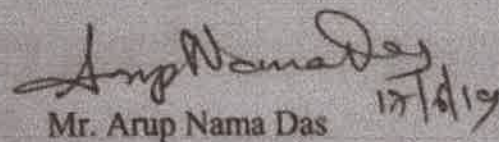
Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



### Certificate

This is to certify that **Ankita Kalita** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**Status of Elephant corridors in Garbhanga-Rani reserve forest in an around Deepor beel, Assam**" under my guidance and supervision in the fulfilment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Ankita Kalita is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
Mr. Arup Nama Das

Assistant Professor

Department of Zoology


School of Biological Science, USTM

Date:

Place:



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology, Meghalaya



# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

**Dr. Dipankar Dutta**

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**Analysis of protein of Fermented fish (by indigenously Bodo traditional method) with a comparative analysis of the protein content from fresh water fish sample**" is a compilation of the results of work carried out by **Ms. Rimli Basumatary (Enlloment No. PG/2017/03517, Roll No. 17/MSZ/67)**, Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Rimli Basumatary** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.



(DIPANKAR DUTTA)  
Dissertation Supervisor

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



## CERTIFICATE

This is to certify that SHAJED ALI AHMED, a student of M.Sc. 4<sup>th</sup> semester bearing Roll No.-17/MSZ/070, has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "A COMPARATIVE STUDY OF PROTEIN AND CARBOHYDRATE CONTENT BETWEEN INDIGENOUS AND BROILER CHICKEN". The same submitted by SHAJED ALI AHMED is a record of research work carried out by him under the supervision of me for the fulfilment of the award of Master in science with specialization in "CELL AND MOLECULAR BIOLOGY". The research output contained in the theses is the outcome of his continuous efforts.

*Wanaz*  
18/6/19

Mrs Wanaz Nasreen Islam

Assistant Professor

Dept. of Zoology, USTM



*[Signature]*

PROF  
Department of Zoology  
University of Science and Technology, Meghalaya

*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **SUDIPTAA SARKAR** bearing **Roll no. 17/MSZ/072** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled "*AN INVENTORY TRADITIONAL METHODS OF ELEPHANT CAPTURE AND ITS TRADE IN WESTERN ASSAM*" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*Prabal Sarkar*

**Dr. Prabal Sarkar**  
**Supervisor**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

Registrar  
University of Science & Technology,  
Meghalaya



## University of Science and Technology, Meghalaya

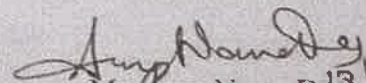
Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



### Certificate

This is to certify that Sudemsha Muchahary student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**Mortality Pattern of Rhesus Macaque at Basistha Temple Kamrup district of Assam, India**" under my guidance and supervision in the fulfillment of the award of Master in Science with Specialization in "**Animal Ecology & Wildlife Biology**". The research output contained in his thesis is the outcome of his continuous effort. The certification is made in the sense that the works compiled and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Sudemsha Muchahary is an honest, dedicated and conscientious researcher and he possesses a very good moral character. I heartily wish him a bright, prosperous and successful future.

  
Mr. Arup Nama Das 13/6/19

Assistant Professor

Department of Zoology

School of Biological Science, USTM

Date: 18-6-2019

Place: USTM



  
HOD  
Department of Zoology  
University of Science and Technology, Meghalaya

Scanned by CamScanner

  
Registrar  
University of Science & Technology,  
Meghalaya





**Unveiling Excellence**

**Department of Zoology**

**University of Science and Technology, Meghalaya**

**Techno city, Kiling road, 9<sup>th</sup> Mile, Ri-Bhoi**

**Mr. Sudipta Nag**

**Assistant Professor, USTM**

### **CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled **"Diversity of Butterfly in Manas Chowki, Baksa District, Assam Field"** submitted by Shri Nobo Kanto Boro is a record of bonafide research work carried out by his under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

**(Mr. Sudipta Nag)**

**Project supervision**

Registrar  
University of Science & Technology,  
Meghalaya

1100  
Department of Zoology  
University of Science and Technology, Meghalaya



Unveiling Excellence

## UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

Techno city, Baridua, 9<sup>th</sup> Mile, Ri-Bhoi-793101, Meghalaya

Dr. Bulbul Acharjee, M.Sc, Ph.D

Associate Professor, Department of Zoology

### CERTIFICATE

This is to certify that the thesis entitled "**Fish Diversity of Kulsi River at Kamrup District, Assam**" is a compilation of the result of research work carried out by **Jesmin Sultan Nahar** (Roll No. 17/MSZ/75, Enrollment No. PG/2017/03551, Examination Id No. 19241046) under my guidance and supervision.

**Jesmin Sultan Nahar** is a bonafied M.Sc 4<sup>th</sup> semester student of the Department of Zoology of this university.

Her work is original. The thesis or any of this part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Masters of Science in Zoology of this university.




  
Signature

Dr. Bulbul Acharjee

Associate Professor

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



Dr. Bulbul Acharjee, Msc, Phd.

Associate professor, Dept. of Zoology

### CERTIFICATE

I have the pleasure to certify that the post graduate minor research project entitled "STUDY OF FISH DIVERSITY OF PUTHIMARI BEEL, SORBHOG, BARPETA, ASSAM" submitted by HABIBA KHATUN (Enrollment no PG/2017/03554, Msc Roll no. 17/MSZ/76, Examination ID ,NO .19241047) is a record of research work carried out by her under my guidance and supervision in the fulfilment of the award of master in science with specialization in ' FISH AND FISHERY BIOLOGY'. The research output contained in her thesis is the outcome of her continuous efforts. This certificate is made in the sense that the work complied and presented in her thesis has not formed the basis for the award of any other degree or diploma as such by any other University or Organisation or Institution.

HABIBA KHATUN is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I healthy wish her a bright and successful future.

*Am* 20.06.19:  
Signature

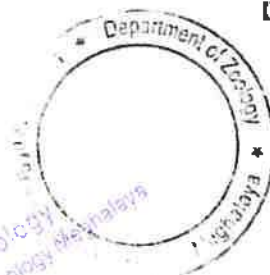
(Dr. Bulbul Acharjee)

Associate professor,

Department of zoology

*AS*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya







**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

Dr. Kimty Das  
Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Estimation of Protein content (mg/g) in body muscles of two commercially important species of Puntius from Brahmaputra River, Guwahati Area” is a compilation of the results of research work carried out by Mr. Abdul Kadir (M.Sc. Roll No. 17/MSZ/77) under my guidance and supervision.

He is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

His work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

Dr. Kimty Das  
Assistant Professor, USTM

**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Bulbul Acharjee**  
Associate Professor

### **CERTIFICATE**

This is to certify that the thesis entitled "*Fish Diversity of Yongo River, Aalo, West Siang*" is a compilation of the results of research work carried out by Mr. Chimo Lombi (M.Sc. Roll No. 17/MSZ/78) under my guidance and supervision.

He is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

His work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

  
Signature

**Dr. Bulbul Acharjee**  
Associate Professor, USTM





**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

  
**Registrar**  
University of Science & Technology,  
Meghalaya



Unveiling Excellence

**Department of Zoology**  
**University of Science and Technology, Meghalaya**  
**Techno city, Kiling road, 9<sup>th</sup> Mile, Ri-Bhoi**

---

**Mr. Sudipta Nag**  
**Assistant Professor, USTM**

### **CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled **"Hunting Practices & Techniques used by the Galo Tribe of Arunachal Pradesh with specific reference to the cultural beliefs associated with it"** submitted by Mister **Digge Yomcha** is a record of bonafied research work carried out by his under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)

**Project supervision**



*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya





# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

**Dr. Dipankar Dutta**

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**Hematological study on Fresh water fishes, *Heteropneustes fossilis* and *Clarius batrachus***" is a compilation of the results of work carried out by **Ms. Nikita Sutradhar (Roll No. 17/MSZ/81)**, Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Nikita Sutradhar** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.



(DIPANKAR DUTTA)  
Dissertation Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA  
DEPARTMENT OF ZOOLOGY TECHNO CITY, KILLING ROAD,  
BARIDUA, 9TH MILE, RI-BHOI, MEGHALAYA- 793101

## CERTIFICATE

This is to certify that the dissertation entitled "**Estimation of soluble protein Content in Fresh, Refrigerated and Sun-dried Conditions of fish *Puntius sophore* (Hamilton)**" is a compilation of the result of work carried out by Ms. **SYED SANA ANSAR** (Enrolment No. PG/2017/03591, Roll No. 17/MSZ/082), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

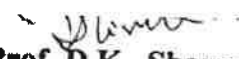
Ms. **SYED SANA ANSAR** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation of any of its part has not been submitted elsewhere for any degree of distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (Under the school of Biological Science) of University of Science & Technology Meghalaya.

I wish her all success in life.

Date: 19/06/19

Place: USTM

  
Prof. D.K. Sharma

Professor

Department of Zoology

School of Biological Science



  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

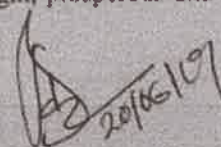
  
Registrar  
University of Science & Technology,  
Meghalaya



## CERTIFICATE

This is to certify that NAYANA DAS a student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled " container survey of mosquito breeding sites in khanapara area of Guwahati " submitted by NAYANA DAS is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in " **ENTOMOLOGY**". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, NAYANA DAS is an honest, dedicated and she possesses a very good moral character. I wish her a bright, prosperous and successful future.



**Dr. BAKHTIAR HUSSAIN**

Associate Professor

Department of Zoology

School of Biological Science, USTM.

Date: 20.06.19



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



## CERTIFICATE

This is to certify that, **PURNIMA BASUMATARY**, a student of M.Sc 4<sup>th</sup> Semester bearing Roll No-17/MSZ/084, has satisfactorily completed the project work, under the guidance of me for the post graduate Research Project entitled "**A STUDY ON THE DIVERSITY OF GRASSHOPPER AT MUSHALPUR AREA OF BAKSA DISTRICT, ASSAM**". The same submitted by PURNIMA BASUMATARY is a record of research work carried out by her under the supervision of me for the fulfilment of the award of Master's in Science with specialization in "**ENTOMOLOGY**". The research output contained in the thesis is the outcome of her continuous efforts.

Moreover, PURNIMA BASUMATARY is an honest, dedicated and conscientious research and she possesses a very good moral character. I wish her a bright, prosperous and successful future.


  
Dr. Bhaktiar Hussain

Project Supervisor

Department of Zoology, USTM

School of Biological Science

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



## DEPARTMENT OF ZOOLOGY

### UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

#### CERTIFICATE

This is to certify that **Darshana Saikia** bearing Roll no. **17/MSZ/85** and Enrollment no. **PG/2017/3612** is a student of fourth semester of the course **Msc. Zoology** in University of Science and Technology, Meghalaya. She has successfully carried out her dissertation work entitled **"PREVALENCE OF ANEMIA AMONG FEMALE OF AGE GROUP 18-25 YEARS, RESIDING EITHER IN HOSTELS OR AS PAYING GUESTS ACROSS KHANAPARA, SIX MILE AND RUKMINIGAON AREA, KAMRUP DISTRICT, GUWAHATI, ASSAM"** under my guidance and supervision for the partial fulfillment of the requirement for the degree of Master of Science.

Data incorporated in this dissertation are based on her field survey, analysis and observation and not submitted to any other institute for any degree.

  
14/06/18.

**Syed Rizaul Karim Ahmed**

**Supervisor**

  
Registrar  
University of Science & Technology,  
Meghalaya  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
Established under Act 6 of 2008 enacted by State Legislative Assembly of  
Meghalaya & incorporated under section 22 & 2 (f) of the UGC Act 1956

## CERTIFICATE

This is to certify that Mehjabin Chowdhury bearing Roll no.: 17/MSZ/86 and Enrollment no.: PG/2017/03627 is a bona fide student of 4th semester of the course M. Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out her dissertation entitled **"MORPHOMETRIC STUDY OF MUTANT VARIETIES OF FRUIT FLY (*Drosophila melanogaster*) IN LABORATORY REARING"** under my supervision and guidance for the partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree to any other institute.



*R. Kakoti*  
10.10.19

**Dr. Rashminata Kakoti**  
Supervisor

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology  
Meghalaya





*Unveiling Excellence*

Dr. Bulbul Acharjee, M. Sc, PhD

Associate Professor, Dept. of Zoology

## CERTIFICATE

This is to Certify that Asmina Khatun student of M. Sc. 4<sup>th</sup> semester has satisfactory completed the project work under the guidance of me the post graduate research project entitled "STUDY OF FISH DIVERSITY OF BALAISUTI BEEL, KALGACHIA, BARPETA DISTRICT, ASSAM" submitted by ASMINA KHATUN (Enrollment no-PG/2017/03635, Roll no-17/MSZ/87, Exam ID-19241058) is a record of research work carried out by her under guidance and supervision of me in the fulfillment of the award of Master in Science with specialization in 'FISH AND FISHERY BIOLOGY'. The research output contained in her thesis is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

ASMINA KHATUN is an honest, dedicated and conscientious research and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
Dr. Bulbul Acharjee

Associate Professor Department of Zoology



  
Registrar  
University of Science & Technology  
Meghalaya

  
Associate Professor  
Department of Zoology  
University of Science and Technology Meghalaya



Unveiling Excellence

**Department of Zoology**  
**University of Science and Technology, Meghalaya**  
**Techno city, Kiling road, 9<sup>th</sup> Mile, Ri-Bho**

**Mr.Sudipta Nag**

**Assistant Professor,**

**USTM.**

**CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled " A STUDY TO ASSESS THE BIO-PHYSICO-CHEMICAL PARAMETERS AND THE THREATS CONCERNED WITH THE DEEPOR BEEL AND SILSAKO BEEL OF GUWAHATI CITY, ASSAM " submitted by JEMIMA MASUM SULTANA is a record of bonafied research work carried out by her under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in her thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution

*Sudipta Nag*  
(Mr.Sudipta Nag)

**Assistant Professor**



*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **NAVAJIT BAYAN** bearing **Roll no. 17/MSZ/090** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. He has successfully carried out the dissertation entitled "*SPIDER DIVERSITY IN NALBARI DISTRICT OF ASSAM*" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on his observation and not submitted for any other degree in any other institute.

*Prabal Sarkar*  
**Dr. Prabal Sarkar**  
**Supervisor**

*[Signature]*  
**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

*[Signature]*  
**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



## DEPARTMENT OF ZOOLOGY

### UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Established under Act 6 of 2008 enacted by the State Legislative Assembly of Meghalaya & incorporated under section 22 & 2(f) of the UGC Act 1956

### CERTIFICATE

This is to certify that research entitled "EVALUATION OF PROTEIN CONTENT OF *Anabas testudineus* of DHEER BILL, DHUBRI UNDER FRESH, FROZEN AND DRIED CONDITIONS" submitted in partial fulfillment for the award of M.Sc. Degree in BIOLOGICAL SCIENCES with specialization in CELL AND MOLECULAR BIOLOGY of the University of Science and Technology, Meghalaya, is a record for the research work carried out by Palash Paul under my guidance and supervision. No part of this research has been submitted to any other degree or diploma.

All the help and assistance received during the course of investigation have been duly acknowledged.



  
D.K. Sharma


Professor

Department of Zoology

School of Biological Sciences

USTM

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
**Associate Professor**  
**Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)**

*Date: 20<sup>th</sup> June, 2019*

*Certificate*

This is to certify that **RESHMA KHATUN** bearing **Roll no. 17/MSZ/092** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. She has successfully carried out the dissertation entitled "**CRAB DIVERSITY IN BARPETA DISTRICT OF ASSAM**" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on her observation and not submitted for any other degree in any other institute.

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

*Prabal Sarkar.*

**Dr. Prabal Sarkar**  
**Supervisor**

**Techno City, Kling Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

## **CERTIFICATE**

This is to certify that the thesis entitled "Ichthyofaunal diversity with comparative morphometry of selected fish sp. of North Tirap River, Changlang, Arunachal Pradesh" is a compilation of the results of research work carried out by Ms. Tanroi Ngotan (M.Sc. Roll No. 17/MSZ/93) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**





University of Science and Technology, Meghalaya

## Certificate

This is to certify that the dissertation work entitled **"Effect of Vitamin B-Complex on *Samia ricini* 5<sup>th</sup> instar larval body weight and it's shell ratio,** submitted for partial fulfillment of the award for the degree of **Master of Science (M.Sc.) in Zoology** with specialization in **Entomology** of **University of Science and technology, Meghalaya**. This dissertation work has done by **Mr. MD SADDAM HUSSAIN, M.Sc.** 4<sup>th</sup> semester bearing **Roll No. 17/MSZ/94** ,Enrollment No.**PG/2017/03686** and **Examination ID No. 19241064**, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.

*I wish him all success in life.*



*Dr. Alika Borphukon Borah* 10/06/17

**Dr. ALIKA BORPHUKON BORAH**

Assistant Professor  
Department of Zoology,  
University of Science & Technology,  
Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology  
Meghalaya

Scanned by CamScanner

**SCHOOL OF BIOLOGICAL SCIENCE**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**  
**TECHNO CITY, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI -793101, MEGHALAYA.**



**CERTIFICATE**

This is to certify that **BEDANA PROVA ROY** a student of M.Sc 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled **"EVALUATION OF SOLUBLE PROTEIN CONTENT IN FRESH, REFRIGERATED AND SUNDRIED FISH *Notopterus notopterus*"** submitted by **BEDANA PROVA ROY** is a record of research work carried out by her under the supervisor of me in the fulfillment of the award of Master in Science with specialization in **CELL AND MOLECULAR BIOLOGY**". The research outputs contained in her dissertation is the outcome of her continuous efforts. This certification is made in the sense that the work complied and presented in her dissertation has not been formed for the award of any other degree or diploma as such by any other University or Institution.

Moreover, **BEDANA PROVA ROY** is an honest, dedicated and she possesses a very good moral character. I wish her a bright, prosperous and successful future.

Date: 19-6-19

  
**Dr. Dhirendra Kumar Sarma**

Assistant Professor

Department of Zoology

School of Biological Science, USTM.

Examined  
20/6/19





Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**Unveiling Excellence**

**Department of Zoology**

**University of Science and Technology, Meghalaya**

**Techno city, Killing road, 9<sup>th</sup> Mile, Ri-Bhoi**

**Mr. Sudipta Nag**

**Assistant Professor, USTM**

### **CERTIFICATE**

I have the pleasure to certify that the post graduate research project entitled **"COMPARATIVE PHYSICO-CHEMICAL ANALYSIS OF CHAULKHIOWA, FALLA, BRAHMAPUTRA AND BEKI, RIVER WITH SPECIFIC REFERENCE TO FISH DIVERSITY IN BARPETA DISTRICT, ASSAM"** submitted by Amin Hussain is a record of bonafied research work carried out by him under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)

**Project supervision**



*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology, Meghalaya

**Scanned with CamScanner**

Scanned with CamScanner





# University of Science and Technology, Meghalaya

(established under Act 6 of 2008 State Legislative Assembly of Meghalaya and incorporated under section 22 and 2(f) of the UGC Act 1956)

Dr Bulbul Acharjee, M.Sc., Ph.D,  
Associate professor, Department of Zoology

June 20, 2019

## Certificate

This is to certify that the thesis entitled "Fish diversity of Deopani river at Ezengo village, at Lower Dibang Valley district, Arunachal Pradesh is a compilation of the results of research work carried out by miss Koj Sumpi (Enrollment No. PG/17/03703 and M.Sc Roll No. 17/MSG/98) under my guidance and supervision.

Miss Koj Sumpi is a bonafide M.Sc. fourth semester's student of the Department of Zoology of this University.

Her work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University



*Dr Bulbul Acharjee*  
20.06.19  
Dr Bulbul Acharjee

Techno City, Kiling Road Baridus,  
9<sup>th</sup> Mile RI-Bhol District,  
Meghalaya - 793101

*Registrar*

Registrar  
University of Science & Technology,  
Meghalaya

*HOD*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



## DEPARTMENT OF ZOOLOGY

### UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Established under the Act 6 of 2008 enacted by the State Legislative Assembly of Meghalaya  
and incorporated under section 22 and 2 (f) of the UGC Act 1956.

## CERTIFICATE

This is to certify that Rupam Kumar Baruah bearing the Roll no. 17/MS7/99 and Enrollment No. PG/2017/03705 is a bonafied student of fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. He has successfully carried out his dissertation entitled "To study the prevalence of Haemoglobin (Hb) in school going girls of age group 12-18 years, of 4 villages of Dist- Kamrup (M) Assam.", under my supervision and guidance for the partial fulfillment of the requirements for the Degree of Masters of Science.

Data incorporated in this dissertation are based on his observation and not submitted for any other degree to any institute.



Mr. Syed Rizaul Karim Ahmed

Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

# University of Science and Technology, Meghalaya

Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



## Certificate

This is to certify that **Nisha Devi** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**Studies on the certain physico-chemical parameters of water of Brahmaputra river, Guwahati, Assam, India**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Nisha Devi, is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.



*Arup Nama Das*  
Mr. Arup Nama Das 12/6/19

Assistant Professor

Department of Zoology

**Date:** 12 - 6 - 2019

**Place:** USTM

**School of Biological Science, USTM**

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya





University of Science and Technology, Meghalaya

### Certificate

This is to certify that the dissertation work entitled "EFFECT OF HYPOTHERMIA ON LARVAL GROWTH AND DISEASE INCIDENCE IN REARING OF MUGA SILKWORM (*Antheraea assama*)" submitted for partial fulfillment of the award for the degree of Master of Science (M.Sc.) in Zoology with specialization in ENTOMOLOGY of University of Science and Technology, Meghalaya. This dissertation work has done by Mr.SANDIP LAHKAR, M.Sc.4<sup>th</sup> semester bearing Roll No. 17/MSZ/102 and Enrollment No.PG/2017/03723, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.

I wish him all success in life.



*P. Kakati*  
*13.06.2019*  
**DR. RASHMIMALA KAKATI**  
PROFESSOR

Department of Zoology,  
University of Science & Technology,  
Meghalaya

**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

**Registrar**  
University of Science & Technology,  
Meghalaya



**Dr. Bulbul Acharjee , MSc, PhD**

**Associate Professor , Dept. of Zoology**

### **CERTIFICATE**

It is certified that the thesis entitled "Systematic Account of Fish Diversity of Charon Beel at Morigaon District , Assam " is a compilation of the results of dissertation work carried out by Reema Senga of Roll No= 17/MSZ/103 , 4<sup>TH</sup> semester in Department of Zoology , USTM , under my guidance and supervision . Her work is original and this thesis or any of its part has not been submitted elsewhere for any degree or distinction .

I am pleased to forward this consideration for the award of the degree of Master in Science in Zoology of this University .

  
Signature

**Dr. Bulbul Acharjee**

**Associate Professor**

**Department of Zoology**





Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



# University of Science and Technology, Meghalaya

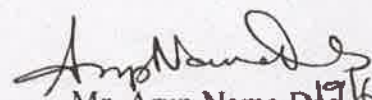
Techno City, Baridua, 9<sup>th</sup> mile, Ri-bhoi 793101, Meghalaya



## Certificate

This is to certify that **Liza Saikia** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**A Preliminary study on the habitat utilization by one horned Rhinoceros in Pobitora Wildlife Sanctuary, Assam, India**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, **Liza Saikia** is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

  
Mr. Arup Nama Das 16/19

Assistant Professor

Department of Zoology


School of Biological Science, USTM

Date: 19-6-19

Place: USTM



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





# University of Science and Technology, Meghalaya

Techno city Baridua, 9<sup>th</sup> Mile, Ri-Bhoi-783101, Meghalaya

## Certificate

This is to certify that the project entitled "Butterfly diversity at USTM Campus, Meghalaya" is a compilation of the results of research work carried out by Miss Radhika Basumatary (Registration No. PG/2017/03730 and M.Sc Roll No. 17/MSG/105) under my guidance and supervision.

Miss Radhika Basumatary is a bonafide M.Sc. fourth semester's student of the Department of Zoology of this University.

Her work is original. This work or any of its part has not been submitted elsewhere for any degree or publication.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University



*Dr Alika Borphukan* 10/06/19

Dr Alika Borphukan Borah  
(Assistant Professor)

Department of Zoology

School of Biological Science, USTM

*[Signature]*  
Registrar  
University of Science & Technology  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned by CamScanner



# University of Science & Technology, Meghalaya

(Established under Act 6 of 2008 of State Legislative Assembly of Meghalaya & incorporated under section 22(f) of the UGC Act 1956)

Dr. Bulbul Acharjee, M.Sc., Ph. D.  
Associate Professor, Department of Zoology

Date:

## CERTIFICATE

This is to certify that the thesis entitled "**FISH DIVERSITY OF NAHOTIA AND POTIASOLA BEEL AND RANGAJAN RIVER, POTIAGAON, JORHAT, ASSAM**", by Miss Pooja Hazarika (Enrollment no. PG/17/03744, M.Sc. Roll no. 17/MSZ/106, Examination ID no. 19241074) under my guidance and supervision in the fulfilment of the award of Master in Science in Zoology of this University with specialization in "**FISH AND FISHERY BIOLOGY**".

The research output contained in her thesis is the outcome of her continuous efforts. The work compiled and presented in her thesis has not formed the basis for the award of any other degree or diploma as such by any other University or Organisation or Institution.

**POOJA HAZARIKA** is an honest, dedicated and conscientious researcher and she possesses a very good moral character. I heartly wish her a bright and successful future.

**Dr. Bulbul Acharjee**  
(Associate Professor)  
Deptt. Of Zoology

Techno City, Killing Road, Baridua,  
9<sup>th</sup> Mile, Ri-Bhoi District,  
Meghalaya- 793101

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned with CamScanner



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Kimty Das**  
Assistant Professor

### **CERTIFICATE**

This is to certify that the thesis entitled “Length weight relationship and condition factor of fish species found in Basistha River, Assam” is a compilation of the results of research work carried out by Ms. Mouborosha Hazarika (M.Sc. Roll No. 17/MSZ/107) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

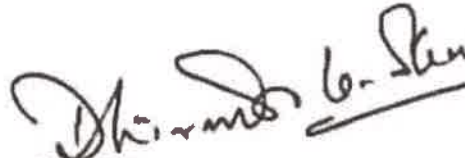
Established under Act 6 of 2008 enacted by the State Legislative Assembly of Meghalaya &  
incorporated under section 22 & 2(f) of the UGC Act 1956

**CERTIFICATE**

This is to certify that research entitled "**A COMPARATIVE STUDY OF PROTEIN CONTENT OF *Catla catla* UNDER FRESH, FROZEN AND DRIED CONDITIONS**" submitted in partial fulfillment for the award of M.Sc. Degree in **BIOLOGICAL SCIENCES** with specialization in **CELL AND MOLECULAR BIOLOGY** of the University of Science and Technology, Meghalaya, is a record for the research work carried out by **Lakshyasree Boruah** under my guidance and supervision. No part of this research has been submitted to any other degree or diploma.

All the help and assistance received during the course of investigation have been duly acknowledged.



  
D.K.Sharma

**Professor**

**Department of Zoology**

**School of Biological Sciences**

**USTM**

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

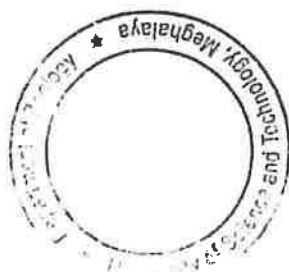


Dr. Bulbul Acherjee, M. Sc, PhD  
Associate Professor, Dept. of Zoology

### CERTIFICATE

It is certified that the thesis entitle “Systematic Account of fish Diversity of Dikrong River at Lakhimpur District, Assam” is a compilation of the results of dissertation work carried out by Joyshree Charingia of Roll No.17/MSZ/109,4<sup>th</sup> semester in Department of Zoology, USTM, under my guidance and supervision. Her work is original and this thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this consideration for the award of the degree of Master in Science in Zoology of this University.



  
Signature

**Dr Bulbul Acherjee**  
**Associate professor,**  
**Department of Zoology**

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Kimty Das**  
Assistant Professor

### **CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity and morphometric analysis of selected fish species from Ziro, Arunachal Pradesh” is a compilation of the results of research work carried out by Ms. Takhe Anku (M.Sc. Roll No. 17/MSZ/110) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

**Registrar**  
University of Science & Technology,  
Meghalaya





University of Science and Technology, Meghalaya

## Certificate

*This is to certify that the dissertation work entitled "A field study on distribution of ABO blood group and presence of rare blood group "Bombay (Oh) phenotype" if any, among the people of Darrang district, Assam, India" submitted for partial fulfillment of the award for the degree of Master of Science (M.Sc.) in Zoology with specialization in Cell and Molecular Biology of University of Science and Technology, Meghalaya. This dissertation work has done by Mr. Jahidul Islam, M.Sc.4<sup>th</sup> semester bearing Roll No. 17/MSZ/111. Exam ID No. 19241079 and Enrollment No. PG/2017/03765, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.*

*I wish him all success in life.*

  
18/06/19.

**SYED RIZAU K. AHMED**

Assistant Professor

Department of Zoology,

University of Science & Technology,  
Meghalaya



Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Bulbul Acharjee**  
Associate Professor

### **CERTIFICATE**

This is to certify that the thesis entitled "*Diversity of ornamental fish in Palla River, Barpeta*" is a compilation of the results of research work carried out by Mr. Mohibul Hoque Ahmed (M.Sc. Roll No. 17/MSZ/112) under my guidance and supervision.

He is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

His work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

  
Signature

**Dr. Bulbul Acharjee**  
Associate Professor, USTM





**HOD**  
**Department of Zoology**  
University of Science and Technology Meghalaya



**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



Unveiling Excellence

UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Techno city, Baridua, 9<sup>th</sup> mile, Ri- Bhoi-793101, Meghalaya

## Certificate

This is to certify that the thesis entitled "Comparative study of Protein content in fresh, refrigerated and Sun dried fish *Labeo gonius* (Hamilton)" submitted in partial fulfillment for the award in M.sc degree in BIOLOGICAL SCIENCE with specialization in Cell and molecular biology of The university of science and Technology, Meghalaya, is a record of the bona fied work carried out by Puja Kairi under my guidance and supervision. No part of this thesis has been submitted for any other Degree or Diploma.



  
D.K. Sharma

Department of zoology

  
Registrar  
University of Science & Technology,  
Meghalaya



MOD  
Department of Zoology  
University of Science and Technology, Meghalaya





University of Science and Technology, Meghalaya

## Certificate

*This is to certify that the dissertation work entitled **A field study on detection of Pebrine spore in Eri Silkworm (*Samia ricini*) seed in Silkworm rearing villages of Baksa District, Assam, India.** submitted for partial fulfillment of the award for the degree of **Master of Science (M.Sc.) in Zoology** with specialization in **Entomology of University of Science and Technology, Meghalaya.** This dissertation work has done by **Mr. Himangshu Baruah, M.Sc.** 4<sup>th</sup> semester bearing **Roll No. 17/MSZ/115, Exam ID No. 19241082 and Enrollment No. PG/2017/03784,** under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.*

*I wish him all success in life.*



*Dr. Alika Borphukan* 12/06/19

**Dr. ALIKA BORPHUKAN BORAH**

Assistant Professor

Department of Zoology,

University of Science & Technology,  
Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

**HOD**  
Department of Zoology  
University of Science and Technology, Meghalaya

Scanned by CamScanner



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**  
Department of Zoology, School of Biological Sciences  
Ri-Bhoi, Baridua, Meghalaya – 793101, India

---

**Dr. Bulbul Acharjee**  
Associate Professor

### **CERTIFICATE**

This is to certify that the thesis entitled “*Fish Diversity of Lali River*” is a compilation of the results of research work carried out by Ms. Anamika Chungkhong (M.Sc. Roll No. 17/MSZ/116) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

  
Signature

**Dr. Bulbul Acharjee**  
Associate Professor, USTM





**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

  
**Registrar**  
University of Science & Technology,  
Meghalaya



University of Science and Technology, Meghalaya  
Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya



## CERTIFICATE

This is to certify that **LUIT PROTIM BORAH**, a student of M.Sc. 4<sup>th</sup> semester bearing Roll No- 17/MSZ/117, has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled "The study of Grasshopper at Sonapur Kamrup metro district, Assam" submitted by **LUIT PROTIM BORAH** is a record of research work carried out by him under the supervision of me for the fulfillment of the award of Master in science with specialization in "ENTOMOLOGY". The research output contained in the thesis is the outcome of his continuous efforts.



*[Signature]*  
19/06/19

**Dr. Bakhtiar Hussain**  
Project supervisor  
Department of Zoology  
USTM  
School of Biological Science

Date:

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



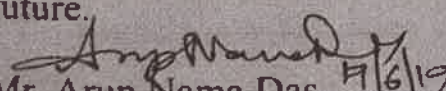
**University of Science and Technology, Meghalaya**  
**Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101, Meghalaya**



**Certificate**

This is to certify that **Miss Fungbili Brahma** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**Study on the Avian Diversity in Kaya Kujia Wetland Park, Abhayapuri, Bongaigaon**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization** in "**Animal Ecology & Wildlife Biology**". The research output contained in her thesis is the outcome of her continuous effort. The certification is made in the sense that the works compiled and presented in her thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Fungbili Brahma is an honest, dedicated and conscientious researcher and She possesses a very good moral character. I heartily wish her a bright, prosperous and successful future.

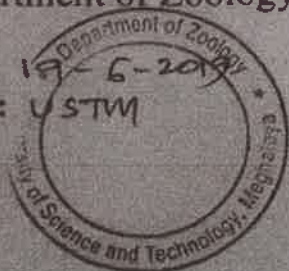
  
Mr. Arup Nama Das 17/6/19


Assistant Professor


Department of Zoology

Date: 17-6-2019  
Place: USTM

School of Biological Science, USTM



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



UNIVERSITY OF SCIENCE & TECHNOLOGY , MEGHALAYA  
INO CITY, BARIDUA, 9<sup>TH</sup> MILE , RI-BHOI 793101 , MEGHALAYA

## CERTIFICATE

This is to certify that the dissertation report entitled "EFFECT OF TEMPERATURE VARIATION ON MORPHOMETRY OF LEGS & WINGS OF *Aedes* MOSQUITO" was carried out and submitted by NIHA NASRIN HOQUE , a student of M.Sc 4<sup>th</sup> semester, Roll no. 17/MSZ/119 , under my guidance and supervision. This work has been performed as a partial fulfillment of the M.Sc 4<sup>th</sup> semester under Department of Zoology, USTM during 2017-2019 .

R. Kakati  
19.06.19

Dr. Rashmimala Kakati

Professor

Department of Zoology

School of Biological Science, USTM

  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya



*Defining Excellence*

# University of Science and Technology, Meghalaya

(established under Act 6 of 2008 State Legislative Assembly of Meghalaya and incorporated under section 22 and 2(f) of the UGC Act 1956)

Dr Bulbul Acharjee, M.Sc., Ph.D,  
Associate professor, Department of Zoology

20<sup>th</sup> June, 2019

## Certificate

This is to certify that the thesis entitled "**FISH MARKETING STATUS AT DIMAPUR DISTRICT, NAGALAND**". It is a compilation of the results of research work carried out by Miss Katoli G. Yeptho (Enrollment No. PG/2017/03804 and M.Sc Roll No. 17/MSG/120) under my guidance and supervision.

Miss Katoli G. Yeptho is a bonafide M.Sc. fourth semester's student of the Department of Zoology of this University.

Her work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University



*Bulbul Acharjee* 20.06.19.

Dr Bulbul Acharjee

Techno City, Klong Road Baridua,  
9<sup>th</sup> Mile Ri-Bhoi District,  
Meghalaya - 793101

*Bulbul Acharjee*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya  
Scanned with CamScanner





# UNIVERSITY OF SCIENCE & TECHNOLOGY MEGHALAYA

(Established under Act 6 of 2008 enacted by the state Legislative Assembly  
of Meghalaya & incorporated under section 22 & 2(f) of the UGC Act 1956)

## Certificate

This is to certify that thesis entitle fish diversity of Kapla Beel at Sarthebari, Barpeta District, Assam is a compilation of the results of research work carried out by Monika Ahmed (Enrollment No. PG/2017/03811 MSc Roll No. 17/MSZ/121) under my guidance and supervision.

Miss Monika Ahmed is a bon fide M.Sc. fourth Semester's student of the Department of Zoology of this University.

Her work is original. This thesis or any of its part has not been submitted elsewhere for any degree of distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

*Ba* 20/6/19

Dr. Bulbul Acharjee



*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Techno City, Kling Road, Baridua, 9th Mile, Ri-Bhoi, Meghalaya-793101  
Ph: 0361-2895030 (Telefax), 098540-23060, E-mail: [ustm2011@gmail.com](mailto:ustm2011@gmail.com), Website: [www.ustm.ac.in](http://www.ustm.ac.in)



# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

(Established under Act 6 of 2008 of State Legislative Assembly of Meghalaya & Incorporated under section 22 & 2(f) of the UGC Act (1956))

DR BULBUL ACHARJEE, M.SC, PHD  
Associate professor, Department of Zoology

June 20, 2019

## Certificate

This is to certify that the thesis entitle **Ichthyofaunal Diversity of Dikhu River at Mokokchung district, Nagaland** is a compilation of the results of research work carried out by **Temsueinla Longkumer** (Examination ID. 19241089, Enrollment NO. PG/2017/03824, & MSc Roll no 17/MSZ/122) under my guidance and supervision.

**Temsueinla Longkumer** is a bona fide M.SC. Fourth semester's student of the Department of Zoology of this university.

Her work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to foward this thesis for consideration for the award of the degree of Master in science in Zoology of this university.



*Dr Bulbul Acharjee*

**Dr Bulbul Acharjee**

**Associate professor, Dept of Zoology.**

*Registrar*

Registrar  
University of Science & Technology,  
Meghalaya

*HOD*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**University Of Science & Technology, Meghalaya**  
(Established under act of 2008 of state legislative assembly of Meghalaya & incorporated under section 22 & 2(f) of the UGC Act 1956)

**Dr. BULBUL ACHARJEE, M.SC, Ph. D**  
Associate professor, Department of Zoology



[www.asianfish.org](http://www.asianfish.org)

20 June 2019

## Certificate

This is to certify that the thesis entitle *ICHTHYOFAUNAL DIVERSITY OF SIANG RIVER* at Pasighat , Arunachal Pradesh is a compilation of the results of research work carried out by Miti Mongku (Enrollment No. PG/2017/03833 and M.Sc roll no. 17/MSZ/123) under my guidance and supervision.

Miti Mongku is a bona fide MSC fourth semester's student of the Department of Zoology of this University.

Her work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

*Dr. Bulbul Acharjee*  
20.06.19

**Dr. BULBUL ACHARJEE**

Techno city, killing road, Baridua,  
9<sup>th</sup> Mile, Ri- Bhoi District,  
Meghalaya - 793101



*Registrar*  
University of Science & Technology,  
Meghalaya

*HOD*  
Department of Zoology  
University of Science and Technology Meghalaya

Scanned with CamScanner





University of Science and Technology, Meghalaya

## Certificate

This is to certify that the dissertation work entitled "***The toxicological impact of Fluoride content on the muscle protein of *Heteropneustes fossilis****" submitted for partial fulfillment of the award for the degree of **Master of Science (M.Sc.) in Zoology** with specialization in **Cell and Molecular Biology** of **University of Science and technology, Meghalaya**. This dissertation work has done by **Mr. Nur Alam, M.Sc.** 4<sup>th</sup> semester bearing **Roll No. 17/MSZ/124** and **Enrollment No. PG/2017/03834**, under my guidance and supervision. This dissertation or any of its part has not been submitted to any other degree or diploma.

*I wish him all success in life.*



*Wanaz N. Islam*  
12/6/19

**Wanaz N. Islam**  
Assistant Professor  
Department of Zoology,  
University of Science &  
Technology, Meghalaya

*[Signature]*

Department of Zoology  
University of Science and Technology, Meghalaya

*[Signature]*

Registrar  
University of Science & Technology,  
Meghalaya



# University of Science and Technology, Meghalaya

(Established under act of 2008 of state legislative assembly of Meghalaya & Incorporated under section 22 & 2(f) of the UGC Act 1956)

Dr. Bulbul Acharjee M.Sc, Ph. D  
Associate professor, Department of Zoology

June 20, 2019

## CERTIFICATE

This is to certify that the thesis entitled "Fish diversity of Batang River at Mebo village of East Siang district, Arunachal Pradesh" is a compilation of the results of research work carried out by Mr. Mingkeng Dalbong (Enrollment No. PG/17/03836 and M.Sc Roll No. 17/MSZ/125) under my guidance and supervision.

Mr. Mingkeng Dalbong is a bonafide M.Sc. fourth semester's student of the Department of Zoology of this University.

His work is original. This thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.



*[Signature]* 20.06.19

Dr. Bulbul Acharjee

Techno City, Kiling Road Baridua,  
9<sup>th</sup> Mile Ri -Bhoi District,  
Meghalaya – 793101

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya  
Scanned with CamScanner





Unveiling Excellence

Department of Zoology

University of Science and Technology, Meghalaya

Techno city, Kiling road, 9<sup>th</sup> Mile, Ri-Bhoi

Mr. Sudipta Nag

Assistant Professor, USTM

## CERTIFICATE

I have the pleasure to certify that the post graduate research project entitled "Assessing the patterns of nesting and roosting distribution of House Sparrow (*Passer domesticus*) in Guwahati City, Assam." submitted by Anasuya Bharadwaj is a record of bonafied research work carried out by his under my guidance and supervision for the partial fulfillment of the requirements for the degree of Master of Science. This certification is made in the sense that the work compiled and presented in his thesis has not formed the basis for the award of any degree or diploma as such by any other University or Organization or Institution.

*Sudipta Nag*  
(Mr. Sudipta Nag)

Project supervisor



*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





# UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA

## DEPARTMENT OF ZOOLOGY

TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI, MEGHALAYA- 793101

### Dr. Dipankar Dutta

Assistant Professor & Head,

Phone: +91 9864264723, +91 8638122586

Email: dipankar.dd.26@gmail.com

www.ustm.ac.in

DATE: 20/06/2019

### CERTIFICATE

This is to certify that the dissertation entitled "**Effect of Colchicine on mitosis of Onion root tips**" is a compilation of the results of work carried out by **Ms. Samjhana Upadhyaya** (Enrollment No. PG/2017/03855, Roll No. 17/MSZ/127), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

**Ms. Samjhana Upadhyaya** is bonafide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.



(DIPANKAR DUTTA)  
Dissertation Supervisor

Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya




Dr. Bulbul Acherjee, M. Sc, PhD  
Associate Professor, Dept. of Zoology

### CERTIFICATE

It is certified that the thesis entitle "Systematic Account of fish Diversity of Bomani beel at Kamrup District, Assam" is a compilation of the results of dissertation work carried out by Barsha Baroi of Roll No.17/MSZ/128,4<sup>th</sup> semester in Department of Zoology, USTM, under my guidance and supervision. Her work is original and this thesis or any of its part has not been submitted elsewhere for any degree or distinction.

I am pleased to forward this consideration for the award of the degree of Master in Science in Zoology of this University.



  
Signature

Dr Bulbul Acherjee  
Associate professor,  
Department of Zoology



2  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya

  
Registrar  
University of Science & Technology,  
Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

### **CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Umtrew River, Meghalaya” is a compilation of the results of research work carried out by Ms. Wandahun Wansai (M.Sc. Roll No. 17/MSZ/130) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**Registrar**  
**University of Science & Technology,**  
**Meghalaya**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

**CERTIFICATE**

This is to certify that the thesis entitled “Fishing gears used in Lakhimpur District, Assam” is a compilation of the results of research work carried out by Ms. Fatema Yasmin (M.Sc. Roll No. 17/MSZ/131) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**Registrar**  
**University of Science & Technology,**  
**Meghalaya**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**



UNIVERSITY OF SCIENCE & TECHNOLOGY,  
MEGHALAYA DEPARTMENT OF ZOOLOGY  
TECHNO CITY, KILLING ROAD, BARIDUA, 9<sup>TH</sup> MILE, RI-BHOI,  
MEGHALAYA- 793101

### CERTIFICATE

This is to certify that the dissertation entitled "**Comparative Assessment of Soluble Protein content in Fresh, Refrigerated and Sundried Fish *Cirrhenus mrigala* (Hamilton)**" is a compilation of the results of work carried out by **NUSRAT TASMIN NIPA** (Enrolment No.PG/2017/03915, Roll No.17/MSZ/132), Department of Zoology, University of Science & Technology, Meghalaya under my guidance and supervision.

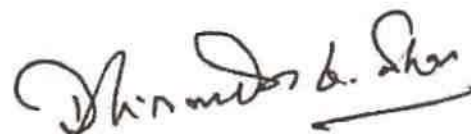
Mr./Ms.**NUSRAT TASMIN NIPA** is bona fide student of M.Sc. Zoology 4<sup>th</sup> Semester with Cell & Molecular Biology as her Special paper. The dissertation or any of its part has not been submitted elsewhere for any degree or distinction in any other University/Institution.

I am pleased to forward this dissertation for consideration for the award of the degree of Master in Science in Zoology (under the School of Biological Science) of University of Science & Technology, Meghalaya.

I wish her all success in life.

Date:

19/06/2019

  
( D.K.Sarmah )

Dissertation Supervisor



  
Registrar  
University of Science & Technology,  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



# UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Techno City, Baridua, 9<sup>th</sup> Mile, Ri-Bhoi – 793101, Meghalaya

## Certificate

This is to certify that **PARSHAJYOTI HAZOWARY**, student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research Project entitled "**Fish diversity of Aurangbedh Beel, Dudhnoi, Goalpara District, Assam**" submitted by **PARSHAJYOTI HAZOWARY** is a record of research work carried out by him under the supervisor of me in the fulfillment of the award of Master in Science with specialization in '**FISH AND FISHERY BIOLOGY**'. The research output contained in her thesis is the outcome of her continuous efforts. This certification is made in the sense that the work compiled and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other UNIVERSITY or Institution.

Moreover, **PARSHAJYOTI HAZOWARY** is an honest, dedicated and conscientious research and he possesses a very good moral character. I heartily wish her a bright. I heartily wish her a bright, prosperous and successful future.

(Dr Bulbul Archarjee) 20/6/19

Associate Professor

Department of Zoology

School of Biological Science, USTM

Date 20.6.19



Registrar  
University of Science & Technology,  
Meghalaya

HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA**

(Established under Act No. 6 of 2008 enacted by the State Legislative Assembly Meghalaya and incorporated under section 22 & 2 (f) of the UGC Act 1956)

Website: [www.ustm.ac.in](http://www.ustm.ac.in)

**Dr. Prabal Sarkar**  
Associate Professor  
Email: [prabalsarkarindia@gmail.com](mailto:prabalsarkarindia@gmail.com)

Date: 20<sup>th</sup> June, 2019

*Certificate*

This is to certify that **KHUNGRAI BASUMATARY** bearing **Roll no. 17/MSZ/134** is a bonafied student in fourth semester of the course M.Sc. Zoology in University of Science and Technology, Meghalaya. He has successfully carried out the dissertation entitled "*STATUS OF HUMAN-ELEPHANT CONFLICT AROUND DEEPOR BEEL SANCTUARY OF ASSAM, INDIA*" under my supervision for partial fulfillment of the requirements for the degree of Master of Science.

Data incorporated in this dissertation are based on his observation and not submitted for any other degree in any other institute.

*Prabal Sarkar*

**Dr. Prabal Sarkar**  
Supervisor

**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

**Techno City, Klong Road, 9<sup>th</sup> Mile, Baridua, Dist: Ri-Bhoi, Meghalaya-793101**

**Registrar**  
University of Science & Technology,  
Meghalaya



**University of Science and Technology, Meghalaya**  
**Techno city, Baridua, 9<sup>th</sup> Mile, Ri-Bhoi -793101, Meghalaya**

**Dr. Bulbul Acharjee, M.Sc., Ph.D.**  
Associate professor, Department of Zoology,  
School of Biological science (USTM)

**Date: 20/06/2019**

### **CERTIFICATE**

This is to certify that the thesis entitled “**Ichthyofaunal diversity of Disang River at Sivasagar, District, Assam, (India)**” is a compilation of the result of research work carried out by **Miss Borakha Rani Lukhurakhon** (Enrollment No:-PG/2017/03963, M.Sc., Roll No:-17/MSZ/135, Examination ID No:-19241101) under my guidance and supervision.

**Miss Borakha Rani Lukhurakhon** is a bonafied M.Sc 4<sup>th</sup> Semester student of the **Department of Zoology** of this University.

Her work is original. The thesis or any of this part has been submitted elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master of Science in Zoology of this University.



  
Signature

**[Dr Bulbul Acharjee]**



Registrar  
University of Science & Technology  
Meghalaya



HOD  
Department of Zoology  
University of Science and Technology Meghalaya



Unveiling Excellence

Department of Zoology  
University of Science and Technology, Meghalaya  
Techno city, Kiling Road, 9<sup>th</sup> Mile, Ri - Bhoi

Mr. Sudipta Nag

Assistant Professor, USTM

### CERTIFICATE

This is to certify that Miss JASPREET KAUR student of 4<sup>th</sup> semester bearing Roll No: 17/MSZ/136, Enrollment No: PG/2017/03965 has satisfactorily completed her review work entitled "ACCESSING THE HUMAN-LEOPARD CONFLICT SITUATION IN KAMAKHYA AND MALIGAON AREA OF KAMRUP DISTRICT, ASSAM " under my guidance and supervision in the fulfilment of the degree of master of science with specialization in "Animal Ecology and Wildlife Biology". This certificate is made in the sense that the work completed and presented in her thesis has not formed the basis for any other degree or diploma as such by other University or Organization or Institution.



*Sudipta Nag*  
(Mr. Sudipta Nag)

Project Supervisor

Assistant Professor

Department of Zoology,

USTM

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

*[Signature]*  
HOD  
Department of Zoology  
University of Science and Technology, Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

**CERTIFICATE**

This is to certify that the thesis entitled “Ichthyofaunal diversity of Siang River , Pasighat, Arunachal Pradesh” is a compilation of the results of research work carried out by Ms. Mity Nonong (M.Sc. Roll No. 17/MSZ/137) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**Registrar**  
**University of Science & Technology,**  
**Meghalaya**

**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

Department of Zoology, School of Biological Sciences

Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Kimty Das**

Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Ichthyofaunal Diversity and morphometric analysis of fish species of Tirap River, Arunachal Pradesh.” is a compilation of the results of research work carried out by Mr. Krishna Pradhan (M.Sc. Roll No. 17/MSZ/138) under my guidance and supervision.

He is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

His work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology  
Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

**CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Rilang River, Meghalaya” is a compilation of the results of research work carried out by Ms. Jiedbhalang Khongthaw (M.Sc. Roll No. 17/MSZ/139) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



**University of Science and Technology,  
Meghalaya Techno City, Baridua, 9<sup>th</sup> mile, Ribhoi 793101,  
Meghalaya**

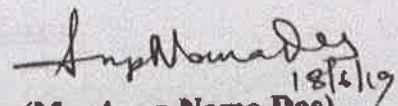


## **CERTIFICATE**

This is to certify that **Akumyanger Longkumer** student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the research project entitled "**A Comparative Hydro-Biological Study Of Two Water Bodies Of Shillong City, Meghalaya**" under my guidance and supervision in the fulfillment of the award of Master in Science with **Specialization in "Animal Ecology & Wildlife Biology"**. The research output contained in his thesis is the outcome of his continuous effort. The certification is made in the sense that the works compiled and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other University or Organization or Institution.

Moreover, Akumyanger Longkumer is an honest, dedicated and conscientious researcher and he possesses a very good moral character. I heartily wish him a bright, prosperous and successful future.



  
**(Mr. Arup Nama Das)**  
**Assistant Professor**



**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

  
**Registrar**  
**University of Science & Technology,**  
**Meghalaya**



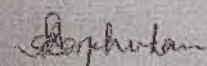
# UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Techno City, Baridua, 9<sup>th</sup> Mile, Ri-Bhoi – 793101, Meghalaya

## Certificate

This is to certify that **MAHATMA KUMAR RABHA**, student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled “**STUDY ON EFFECT OF COCOON PARAMETER OF ERI SILKWORM, *Samia ricini* REARED WITH VITAMIN A ENRICHED DIET**” submitted by **MAHATMA KUMAR RABHA** is a record of research work carried out by him under the supervisor of me in the fulfillment of the award of Master in Science with specialization in ‘**ENTOMOLOGY**’. The research output contained in her thesis is the outcome of her continuous efforts. This certification is made in the sense that the work compiled and presented in his thesis hasn’t formed the basis for the award of any other degree or diploma as such by any other UNIVERSITY or Institution.

Moreover, **MAHATMA KUMAR RABHA** is an honest, dedicated and conscientious research and he possesses a very good moral character. I heartily wish her a bright, I heartily wish her a bright, prosperous and successful future.

  
(Dr Alike Borphukan Borah)  
Assistant Professor  
Department of Zoology  
School of Biological Science, USTM



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology,  
University of Science and Technology Meghalaya



**University of Science and Technology, Meghalaya**

**Techno City, Baridua, 9<sup>th</sup> mile, RI-bhel 793101, Meghalaya**



**CERTIFICATE**

This is to certify that **LOBA GOPAL PATHAK**, a student of M.Sc. 4<sup>th</sup> semester bearing Roll No- 17/MSZ/143, has satisfactorily completed the project work under the guidance of me for the post graduate research project entitled **"THE STUDY OF DIFFERENT SPECIES OF DRAGONFLY IN SONAPUR AREA, KAMRUP METRO DISTRICT, ASSAM."** submitted by **LOBA GOPAL PATHAK** is a record of research work carried out by him under the supervision of me for the fulfillment of the award of Master in science with specialization in **"ENTOMOLOGY"**. The research output contained in the thesis is the outcome of his continuous efforts.

Moreover, Loba Gopal Pathak is an honest, dedicated and conscientious researcher and he possesses a very good moral character. I heartily wish him a bright, prosperous and successful future.

Date:

  
**Dr. Bakhtiar Hussain**

Project supervisor  
Department of Zoology  
USTM  
School of Biological Science



  
Registrar  
University of Science & Technology,  
Meghalaya

  
HOD  
Department of Zoology  
University of Science and Technology Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

Department of Zoology, School of Biological Sciences

Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Kimty Das**

Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Myntdu River, Meghalaya” is a compilation of the results of research work carried out by Ms. Dona Nongkhlaw (M.Sc. Roll No. 17/MSZ/144) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
Assistant Professor, USTM



HOD  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya



## UNIVERSITY OF SCIENCE AND TECHNOLOGY, MEGHALAYA

Techno City, Baridua, 9<sup>th</sup> Mile, RI-Bhoi – 793101, Meghalaya

### Certificate

This is to certify that **RAJ KUSUM BASUMATARY**, student of M.Sc. 4<sup>th</sup> semester has satisfactorily completed the project work under the guidance of me for the post graduate research Project entitled "EFFECT OF RAINFALL ON TEA PEST DENSITY ON TEA GARDENS OF BAKSA DISTRICT, ASSAM" submitted by **RAJ KUSUM BASUMATARY** is a record of research work carried out by him under the supervisor of me in the fulfillment of the award of Master in Science with specialization in 'ENTOMOLOGY'. The research output contained in her thesis is the outcome of her continuous efforts. This certification is made in the sense that the work compiled and presented in his thesis hasn't formed the basis for the award of any other degree or diploma as such by any other UNIVERSITY or Institution.

Moreover, **RAJ KUSUM BASUMATARY** is an honest, dedicated and conscientious research and he possesses a very good moral character. I heartily wish her a bright. I heartily wish her a bright, prosperous and successful future.

*R. Kakati*  
19.06.19  
(Dr Rashmimala Kakati)

Associate Professor

Department of Zoology

School of Biological Science, USTM

Date

*[Signature]*  
Registrar  
University of Science & Technology,  
Meghalaya

*[Signature]*

HOD  
Department of Zoology  
University of Science and Technology Meghalaya



**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

Department of Zoology, School of Biological Sciences

Ri-Bhoi, Baridua, Meghalaya – 793101, India

**Dr. Kimty Das**

Assistant Professor

**CERTIFICATE**

This is to certify that the thesis entitled “Length- Weight relationship of selected murrelets from Deepor Beel, Assam” is a compilation of the results of research work carried out by Mr. Himangshu jyoti Sharma (M.Sc. Roll No. 17/MSZ/146) under my guidance and supervision. He is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

His work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

Dr. Kimty Das  
Assistant Professor, USTM



**HOD**  
Department of Zoology  
University of Science and Technology Meghalaya

Registrar  
University of Science & Technology,  
Meghalaya





**UNIVERSITY OF SCIENCE AND TECHNOLOGY MEGHALAYA**

**Department of Zoology, School of Biological Sciences**

**Ri-Bhoi, Baridua, Meghalaya – 793101, India**

**Dr. Kimty Das**

**Assistant Professor**

**CERTIFICATE**

This is to certify that the thesis entitled “Fish diversity of Simsang River, South Garo Hills, Meghalaya” is a compilation of the results of research work carried out by Ms. Barisha Mark (M.Sc. Roll No. 16/MSZ/84) under my guidance and supervision.

She is a bonafide student of the M.Sc. IV Semester of the Department of Zoology of this University.

Her work is original and this thesis or part of has not been submitted to elsewhere for any degree or distinction.

I am pleased to forward this thesis for consideration for the award of the degree of Master in Science in Zoology of this University.

**Dr. Kimty Das**  
**Assistant Professor, USTM**



**HOD**  
**Department of Zoology**  
**University of Science and Technology Meghalaya**

**Registrar**  
**University of Science & Technology,**  
**Meghalaya**