



# UNION CHRISTIAN COLLEGE ALUVA-2



SSR 5<sup>th</sup> CYCLE 2023



# **DEPARTMENT OF ZOOLOGY**



**B.Sc. Zoology**  
**Supporting Documents**

**M.Sc. Zoology**  
**Supporting Documents**

**UNION CHRISTIAN COLLEGE, ALUVA**  
**DEPARTMENT OF ZOOLOGY**  
(Affiliated to Mahatma Gandhi University- Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled " A Study on Diversity of Spider Species at Union Christian College Campus, Aluva" is submitted by Achsa Mary Varghese (Reg No.200021040899), Jewel Anna Anil (Reg No .200021040907), Sona Joshy (Reg No.200021040915), Devika Harshal (Reg No.200021040922), Rose Maria George (Reg No.200021040929) in partial fulfillment of the requirements for the award of the Degree in B.Sc Zoology under the guidance of Dr. Elizabeth V Mathew. The work is carried out as an in-house project by the student.

Signature of Guide

Signature of HoD

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

Examiners in Charge

- valuel*
1. Dr. Minamol K.C. *M-J*  
21/5/2023
  2. Dr. Nila Devi KN  
*Dr. N. D.*  
21/5/2023



**UNION CHRISTIAN COLLEGE, ALUVA**  
**DEPARTMENT OF ZOOLOGY**  
(Affiliated to Mahatma Gandhi University- Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled " A preliminary study on the Coleopteran diversity of Union Christian College Campus, Aluva" is submitted by : MALAVIKA E M (Reg No. 200021040909) VRINDA V NAIR (Reg No. 200021040917) IRINE V ROBIN (Reg No. 200021040924) in partial fulfilment of the requirements for the award of the Degree in B.Sc Zoology under the guidance of Dr. NILA DEVI K.N . The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD

*Valuel*

Examiners in Charge

1. Dr. Minimol K.C *MeD*  
21/5/2023
2. Dr. Nila Devi K.N  
*Dr. Nila Devi*  
21/5/23

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102



# CERTIFICATE



This is to certify that this project entitled "DIVERSITY OF ODNATES IN UNION CHRISTIAN COLLEGE CAMPUS" was done by, ANOOP V (200021040903), MUHAMMED MUSFIR P P (200021040911), AISHA A J (200021040918), JYOTHILAKSHMI M G (200021040925) to submit the dissertation in fulfillment of the requirements for the Bachelor of Science Degree course in Zoology to the Mahatma Gandhi University. It is an authentic record of original work that has not been submitted for any award or diploma in this or other universities.

**Mr. Dhanush B. Danes**

Lecturer in charge  
Department of Zoology

**Ms. Rima Joseph**

Head of the department  
Department of Zoology

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102



Examiners: (1) Dr. Minamol K.C.   
21/5/23

(2) Dr. Nita Devi KN  
  
21/5/23

## CERTIFICATE OF COMPLETION



This is to certify that the dissertation entitled "A STUDY ON THE CAMPUS HYMENOPTERAN DIVERSITY OF UNION CHRISTIAN COLLEGE, ALUVA, KERALA, INDIA" is submitted to Mahatma Gandhi University, Kottayam, in partial fulfilment for the award of Bachelor of Science Degree in Zoology. It is an authentic record of original group project work done by Aadithya K B, Irin Eldo, Sandhra Sinoj, Anuja Dravid & Nihara Joshi with Register Nos: 200021040898, 200021040906, 200021040914, 200021040921 & 200021040928 respectively during the period of his/her study in the Department of Zoology, Union Christian College, Aluva, under my supervision and guidance. This work is carried out as an in-house project by the students

**Mrs. Rima Joseph**

Project Guide

**Mrs. Rima Joseph**

Assistant Professor & Head

Department of zoology

Examiners:

1. Dr. Minimol K. C.   
2/5/2023

2. Dr. Nita Devi KN   
2/5/2023

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102



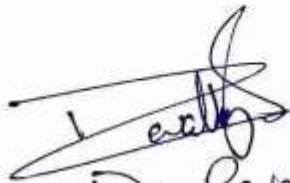
**UNION CHRISTIAN COLLEGE, ALUVA**  
**DEPARTMENT OF ZOOLOGY**  
(Affiliated to Mahatma Gandhi University- Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "SPECIES DIVERSITY AND POPULATION ABUNDANCE OF BUTTERFLY SPECIES IN THE CAMPUS OF UNION CHRISTIAN COLLEGE ALUVA" is submitted by Akshaya Krishna E.K (Reg. No:200021040900), Vandhana Satheesh (Reg.No:200021040916), Fathima Farsana M. A (Reg.No: 200021040923), Sreelakshmi D (Reg. No: 200021040930) in partial fulfillment of the requirements for the award of the Degree in Zoology under the guidance of Dr. Revathy V.S. The work is carried out as an in-house project by the student.

Signature of Guide

  
Dr. Revathy. V.S  
valmed

  
Signature of HoD

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

Examiners in-charge

1. Dr. Minimol K.C. M.S  
2/15/2023
- 2.



**UNION CHRISTIAN COLLEGE, ALUVA DEPARTMENT OF ZOOLOGY**

(Affiliated to Mahatma Gandhi University- Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled " A Study on Diversity of AntSpecies at Union Christian College Campus, Aluva" is submitted by: AISWARYA SIVARAMAN (200021040919) AYANA ANTO (200021040904) NIDHA M (200021040912) KAVYA S KUMAR (200021040926) in partial fulfillment of the requirements for the award of the Degree in B.Sc Zoology under the guidance of Dr. Ann Mary Jacob. The work is carried out as an in-house project by the student.

Signature of Guide

for

Signature of HoD

valued

Examiners in Charge

1. Dr. Minimol K.C.

2.

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

21/1/2023





**UNION CHRISTIAN COLLEGE, ALUVA**

**DEPARTMENT OF ZOOLOGY**

(Affiliated to Mahatma Gandhi University- Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "*A Study on Avifauna of Union Christian College, Aluva, Kerala*" is submitted by **Hana Anwar M, (Reg.No:200021040905), Aliya Razzak K A (Reg.No. 200021040920), Nabeel M B (Reg.No.200021040927), Ruksana C A (Reg.No.200021040913)** in partial fulfilment of the requirements for the award of the Degree in B.Sc Zoology under the guidance of Ms. Femi Anna Thomas. The work is carried out as an in-house project by the student.

Signature of Guide

Valuel

Signature of HoD

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102



Examiners in Charge

1. Dr. Minimal K.C.   
21/5/2023
2. Dr. Nela Devi   
21/5/23

CERTIFICATE

This is to certify that the dissertation entitled **Isolation and Characterization of *Escherichia coli* from Periyar River and An Evaluation of its Antibiotic Sensitivity** is an original work carried out by Mr. Alen Sony with register number: 210011015347 under my supervision and guidance and no part of these work has been presented for any degree, diploma or any other similar title of any university. It is submitted to Mahathma Gandhi University, Kottayam in partial fulfilment for the award of Master of Science in Zoology during the period of his study in the Department of Zoology, Union Christian College Aluva.



Ms. Rima Joseph  
Supervising Guide



Ms. Rima Joseph  
Head of the department

**RIMA JOSEPH**  
**Assistant Professor & HOD**  
**Department of Zoology**  
**Union Christian College**  
**Aluva, Kerala-683 102**

Place: Aluva

Date: 7/8/2023




Valued

Examiners : (1) *Radhika*  
11/9/2023  
Dr. Radhika.R

(2) *Susan Antony*  
11/9/2023  
Dr. Susan Antony

# CERTIFICATE

This is to certify that the dissertation "COMPARISON OF GROWTH PARAMETERS AND OTOLITH MORPHOMETRY OF *ANABAS TESTUDINEUS* (ANABANTIFORMES, ANABANTIDAE) FROM TWO SITES OF PERIYAR RIVER" is an authentic record of project work done by Ms. Shabna Yousaf under my supervision and guidance in partial fulfilment of the requirements for the Degree of Master of Science of Zoology and this project contains no material previously published or written by another person, except where due reference is made.

for   
Lecturer in charge

**Dr Elizabeth V Mathew**

Assistant professor



Department of zoology

Union Christian College

Aluva



Examiners:

- 1)   
11/9/2023  
Dr. Radhika R
- 2)   
11/9/2023  
Dr. Annie Susan Arby



Head of the department

**MS. RIMA JOSEPH**

Assistant Professor

Assistant Professor

Department of Zoology

Union Christian College, Aluva - 683 102

Union Christian college

Aluva

## CERTIFICATE

This is to certify that the dissertation entitled "ISOLATION AND MOLECULAR IDENTIFICATION OF PROTEASE PRODUCING BACTERIA FROM AGRICULTURAL SOIL" submitted on the partial fulfilment for the award of degree of **Master of science in Zoology, Mahatma Gandhi University** during the academic year 2021-2023 is an authentic record of the work carried out by **BEEMA MOL K M** under my supervision and guidance at **PG & Research Department of Zoology, Union Christian College, Aluva**. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.



**Dr. Revathy V S**  
Supervising Guide



**Mrs. Rima Joseph**  
Head of the department  
**RIMA JOSEPH**  
**Assistant Professor & HOD**  
**Department of Zoology**  
**Union Christian College**  
**Aluva, Kerala-683 102**

*Valmed*

Examiners:

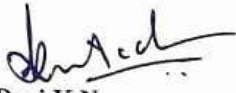
(1) *Dr. Radhika R*  
*Radhika R*  
*11/9/2023*

(2) *Dr. Annie Susan Antony*  
*Annie Susan Antony*  
*11/9/2023*



## CERTIFICATE

This is to certify that the dissertation entitled **“MORPHOMETRIC ANALYSIS OF OTOLITH FROM THE MARINE FISH DACTYLOPTENA MACRACANTHA”** is an original work carried out by Ms. Emilla John with Register No:210011013650 under my supervision and guidance and no part of this work has been presented for any degree, diploma or any other similar title of any university, Kottayam in partial fulfilment for the award of Masters of Science in Zoology during the period of her study in the Department of Zoology, Union Christian College, Aluva.



**Dr. Nila Devi K N**  
Supervising Guide  
Assistant professor  
Department of Zoology  
Union Christian College Aluva



**Ms. Rima Joseph**  
Head of the Department  
**RIMA JOSEPH**  
**Assistant Professor & HOD**  
**Department of Zoology**  
**Union Christian College**  
**Aluva, Kerala-683 102**

Place: Aluva

Date: ?



*Valued*

*Examiner*

1) *Rishika*  
11/9/2023

2) *Rima Joseph*  
11/9/2023  
*Dr. Cinne Susan Antony*

## CERTIFICATE



This is to certify that the dissertation entitled “**THE COMPARATIVE ANALYSIS OF THE RESISTANCE CAPACITIES OF *Halomonas Sp.* FROM THE INDIAN OCEN USING WHOLE GENOME SEQUENCE ANALYSIS**” was submitted on the partial fulfilment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 221-2023 is an authentic record of the work carried out by SWATHY RAJ under my supervision and guidance at PG & Research Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.

**Mr Dhanush B Danes**  
Supervising Guide

**Ms Rima Joseph**  
Head of the department

Place: Aluva


Date: 11.09.2023


*valued*  
Examiners: (1) *Rebinth*  
11/9/2023

(2) *[Signature]*  
11/9/2023

## CERTIFICATE

This is to certify that the dissertation entitled “**DETERMINATION OF LETHAL CONCENTRATION (LC50) AND HISTOPATHOLOGICAL ALTERATIONS IN THE CLITELLUM OF *Eisenia fetida* ON EXPOSURE TO UREA**” submitted on the partial fulfillment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 2021-2023 is an authentic record of the work carried out by MARY SANDRA under my supervision and guidance at PG & Research Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.

  
Dr. Ann Mary Jacob  
Supervising guide

  
Ms. Rima Joseph


Head of the department  
**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102



Place: Aluva

Date: 11/09/2023

*Valued*  
Examiners:

(1)   
11/9/2023  
Dr.

(2).   
11/9/2023  
Dr. Annie Susan Antony.

## CERTIFICATE

This is to certify that the dissertation entitled "STUDIES ON THE METAZOAN PARASITES OF *Rastrelliger kanagurta*(Cuvier,1816) WITH SPECIAL REFERENCE TO THE PHYLOGENETIC ANALYSIS OF *Lecithocladium angustiovum* Yamaguti,1953 IN KANNUR DISTRICT" submitted on the partial fulfillment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 2021-2023 is an authentic record of the work carried out by JINISHA M under my supervision and guidance at PG & Research Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.



**Dhanush B Danes**  
Supervising Guide



**Mrs. Rima Joseph**  
Head of the department

RIMA JOSEPH  
Assistant Professor  
Department of Zoology  
Union Christian College, Aluva - 683 102

Place: Aluva

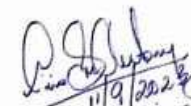
Date: 11/09/2023



Valued

Examiners

1) Dr. Radhika R  11/9/2023

2)  11/9/2023  
Dr. Cinnie Susan Anthony



## CERTIFICATE

This is to certify that the dissertation entitled "Phylogenetic Analysis and *In-silico* prediction of potential vaccine candidates for Indian Strains of Human Papilloma Virus" submitted on the partial fulfillment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 2021-2023 is an authentic record of the work carried out by YEMEEMA under my supervision and guidance at Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.



**Dr. Ann Mary Jacob**  
Supervising Guide



**Mrs. Rima Joseph**  
Head of the department

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-689 102

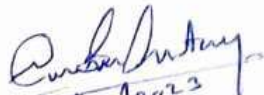
Place: Aluva

Date: 07/09/2023

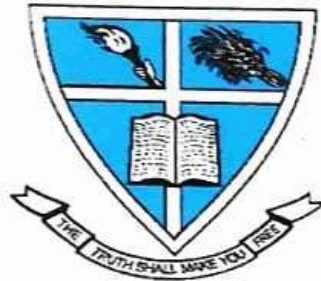


Examiners

1)   
11/9/2023

2)   
11/9/2023

DEPARTMENT OF ZOOLOGY  
UNION CHRISTIAN COLLEGE, ALUVA



CERTIFICATE

This is to certify that the dissertation entitled "COMPARATIVE STUDY OF PRIMARY PRODUCTIVITY AND PIGMENT CHARACTERIZATION FROM DIFFERENT SITES OF RIVER PERIYAR" submitted on the partial fulfillment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 2021-2023 is an authentic record of the work carried out by RASIKA P V under my supervision and guidance at Post Graduate & Research Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.

Dr. Femi Anna Thomas

Supervising **FEMI ANNA THOMAS**  
ASSISTANT PROFESSOR  
DEPARTMENT OF ZOOLOGY  
UNION CHRISTIAN COLLEGE

Place: Aluva ALUVA-683 102

Date: 11/09/2023

Valued  
Examiner

- 1)   
11/9/2023  
Dr. Radhika R
- 2)   
11/9/2023  
Dr. Annie Susan Antony



Mrs. Rima Joseph

Head of the department  
**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

## CERTIFICATE



This is to certify that the dissertation entitled "ZOOPLANKTON DIVERSITY OF RIVER PERIYAR AND ITS RELATION TO THE POLLUTION STATUS OF RIVERINE SYSTEM" was submitted on the partial fulfilment for the award of degree of Master of Science in Zoology, Mahatma Gandhi University during the academic year 221-2023 is an authentic record of the work carried out by SONA.P.A under my supervision and guidance at PG & Research Department of Zoology, Union Christian College, Aluva. Further, it is certified that no part thereof has been presented for the award of any degree, diploma or other similar titles according to the best of knowledge.

Dr. Nila Devi RN  
Supervising Guide

Ms Rima Joseph  
Head of the department

Place: Aluva

Date: 11.09.2023

Examiners: (1) *Radhika*  
11/9/2023 Dr. Radhika R

(2) *Dr. Geeta Susan Antony*  
11/9/2023 Dr. Geeta Susan Antony

## CERTIFICATION

This is to certify that the dissertation " ISOLATION AND MOLECULAR IDENTIFICATION OF LACCASE PRODUCING BACTERIA FROM SOIL" is an authentic record of project work done by Ms Sneha S Shenu under my supervision and guidance in partial fulfilment of the requirements for the Degree of Master of Science of Zoology and this project contains no material previously published or written by another person, except where due reference is made.

  
Lecturer in charge

DR REVATHY VS

Assistant professor

Department of zoology

Union Christian College

Aluva

Examiners:

1)

2)

 11/9/2023 Dr. Radhika R  
 11/9/2023 Dr. Chitra Sreen  


  
Head of the department

MS RIMA JOSEPH

Assistant professor

Department of zoology

Union Christian college


Aluva

**RIMA JOSEPH**

**Assistant Professor & HOD**  
**Department of Zoology**  
**Union Christian College**  
**Aluva, Kerala-683 102**

## CERTIFICATE

This is to certify that the Dissertation "Ecological Niche Modelling of *Rhacophorus malabaricus* and systematic literature review using bibliometrix R package" is a bonafide record of original research work carried out by Ms. ANNA SAM, Register No: 210011016348, in partial fulfillment of the Degree of Master of Science in Zoology during the period of 2021-2023. No part of this work has been submitted for the award of any other degree.

for   
Dr. Elizabeth V. Mathew  
Supervising guide

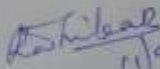
  
Ms. Rima Joseph  
Head of the Department  
RIMA JOSEPH  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

Place: Aluva

Date: 08/09/2023

Valued

Examiners

1)   
11/9/2023  
Dr. Radhika R.

2)   
18/9/2023



## CERTIFICATE

This is to certify that the dissertation entitled "MICROBIAL DIVERSITY AS AN INDEX OF SHELF LIFE OF GARBACTUM" is an original work carried out by Ms. Sandhini C.J (Register No: 210011013654) at National Centre for Aquatic Animal Health, under the supervision and guidance of Prof. Dr. I.S Bright Singh, University Emeritus Professor at National Centre for Aquatic Animal Health, Cochin University of Science and Technology and my co – guidance . No part of this work has been presented elsewhere for the award of any degree or diploma to any candidates. This work is submitted to Mahatma Gandhi University, Kottayam in partial fulfillment for the award of Master of Science in Zoology during the period of his study in the Department of Zoology, Union Christian College, Aluva,



**Ms. Rima Joseph**  
Assistant Professor  
Supervising Guide



**HOD**  
Department of Zoology  
Union Christian College, Aluva

Place : Aluva

Date :08.09.2023

**RIMA JOSEPH**  
Assistant Professor & HOD  
Department of Zoology  
Union Christian College  
Aluva, Kerala-683 102

Examiner

1) *Radhika R*  
11/9/2023

Examiner

2) *Dr. Rishika R*  
11/9/2023  
*Dr. Cimee Sree Antony*

*Valued*