# A STUDY ON THE MILK-YIELDINC CAPACITY AND PURITY OF MILK IN THREE DIFFERENT BREEDS OF COWS AT MAROTTYCHODU, KALADY, KERALA

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A PROJECT WORK IN ZOOLOGY SUBMITTED TO MAHATMA GANDHI UNIVERSITY, KOTTAYAM FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY



SREE SANKARA COHLEGE, KALADY

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MALATIMA GANDHI ONIVERSITY, KOTTAKAM

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REE SANKARA COLLEGE, KALLAND

2020-2023

SREE SANKARACOLLEGE

APA -

# A STUDY ON THE MILK-YIELDING CAPACITY AND PURITY OF MILK IN THREE DIFFERENT BREEDS OF COWS AT MAROTTYCHODU, KALADY, KERALA

<b>ALBIN JAISON</b>	-	200021040728
<b>ROSEMARY JOY</b>	-	200021040735
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#### SREE SANKARA COLLEGE, KALADY

This is to certify that the project work entitled "A STUDY ON THE MILK-YIELDING CAPACITY AND PURITY OF MILK IN THREE DIFFERENT BREEDS OF COWS AT MAROTTYCHODU, KALADY, KERALA" is the work carried out by ALBIN JAISON, ROSEMARY JOY, and ABHIJITH N. A. under my supervision in the Department of Zoology in partial fulfilment of B. Sc. Degree course.

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Dr. SAMPATH KUMAR S. Head of the Department Department of Zoology Sree Sankara College, Kalady

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# A STUDY ON THE RIVER BANK FAUNA OF PERIVAR RIVER AT MANJAPETTY, PERUMBAVOOR, ERNAKULAM, KERALA

SREELAKSHMI MADHU : 200021040751

A PROJECT WORK IN ZOOLOGY SUBMITTED TO MAHATMA GANDHI UNIVERSITY, KOTTAYAM FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY

SREE SANKARACOLLEGE

SREE SANKARA COLLEGE, KALADY 2020-2023

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# A STUDY ON LIVELYHOOD OF TRIBALS IN KUTTAMPUZHA FOREST, KUTTAMPUZHA, KERALA

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SREE SANKARA COLLEGE, KALADY 2020-2023

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#### A STUDY ON THE BUTTERFLY DIVERSITY AND ITS HOST- PLANT INTERACTION IN SREEBHOOTHAPURAM, KAIPRA, KALADY

#### ANJANA SUNOOB Reg.No.200021040730

A Project work in Zoology submitted to Mahatma Gandhi University, Kottayam for Partial Fulfilment of the requirement for the degree of BACHELOR OF SCIENCE IN ZOOLOGY



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#### A STUDY ON THE HOME SEWAGE TREATMENT SYSTEM AT THEATMENT, SODUNGALLUR

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A PROJECT WORK IN ZOOLOGY SUBMITTED TO MAHATMAI GANDHI UNIVERSITY, KOTTAYAM FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY



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#### A STUDY ON THE HOME SEWAGE TREATMENT SYSTEM AT THIRUVANCHIKULAM, KODUNGALLUR

SREELAKSHMI R. KRISHNA: 200021040760

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A STUDY ON NILGIRI TAHR (*Nilgiritragus Hylocrius*) AT ERAVIKULAM NATIONAL PARK, RAJAMALA, MUNNAR

ARSHITHA SREE R. : 200021040731

A PROJECT WORK IN ZOOLOGY SUBMITTED TO MAHATMA GANDHI UNIVERSITY, KOTTAYAM FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY



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# A STUDY ON FOUR SPECIES OF ORNAMENTAL FISHES IN AN AQUARIUM SHOP AT KOTTAT IN CHALAKUDY, KERALA

#### **GOPIKA SHAIJU: 200021040747**

A PROJECT WORK IN ZOOLOGY SUBMITTED TO MAHATMA GANDHI UNIVERSITY, KOTTAYAM FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY

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HOMESTEAD ARTHROPOD DIVERSITY AT CHETHICODE NEAR This is to certify that the project work entitled "A STUDY ON THE work carried out by ANANYA BABY under my supervision in the Department COCHIN INTERNATIONAL AIRPORT, ERNAKULAM, KERALA is the of Zoology in partial fulfilment of B. Sc. Degree course.



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Dr. 9 Head of the Department Department of Zoology IPATH KUMAR S.

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#### A STUDY ON THE DIVERSITY OF BUTTERFLY FAUNA IN SELECTED AREAS OF SREE SANKARA COLLEGE CAMPUS, KALADY

Dissertation submitted to Mahatma Gandhi University in partial fulfilment of requirement for the award of

#### DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY

By

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#### **BONAFIDE CERTIFICATE**

Certified that this dissertation entitled 'A STUDY ON THE DIVERSITY OF BUTTERFLY FAUNA IN SELECTED AREAS OF SREE SANKARA COLLEGE CAMPUS, KALADY' is a bonafide work done by ABHIRAMI K J, at Sree Sankara College, Kalady under the guidance of Mrs. Revathy Babu, Assistant professor, Department of Zoology, Sree Sankara College, Kalady, during the academic year 2022-2023.

Place: Kalady

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IN

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By

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#### A STUDY ON THE DIVERSITY OF SPIDER FAUNA IN SELECTED AREAS OF SREE SANKARA COLLEGE CAMPUS, KALADY

Dissertation submitted to Mahatma Gandhi University in partial fulfilment of the requirements for the award of

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#### INSECT DIVERSITY IN THE SELECTED AREAS OF SREE SANKARA COLLEGE CAMPUS, KALADY

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Dissertation submitted to Mahatma Gandhi University in partial fulfillment of the

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### BEHAVIORAL STUDY IN DIFFERENT BREEDS OF CHICKENS

Submitted to

#### MAHATMA GANDHI UNIVERSITY

In partial fulfillment of the requirements for the award of the degree

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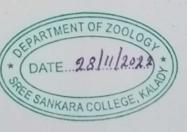
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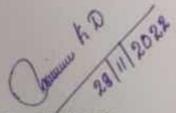
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### COMPARATIVE STUDY ON THE BEHAVIOURAL PATTERNS OF FIGHTER FISH AND GUPPY

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### STUDY ON THE ANTHACTERIAL PROPERTIES OF HERBAL ENTRACTS

Submitted to

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### STUDY ON THE ANTIBACTERIAL PROPERTIES OF HERBAL EXTRACTS

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### BEHAVIOURAL COMPARISON OF DOMESTIC & PERSIAN CATS

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### STUDY ON THE SIDE EFFECTS OF MASK AND SANITIZER USAGE

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#### Reg. No. 200021040743

Guided by Dr. Mini K.D Assistant Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY



This is to certify that the project work entitled "Study on the side effects of mask and sanitizer usage" is the work carried out by Ann Mariya Themitachan for the partial fulfilment of B. Sc. Degree course under my supervision in the Department of Zoology.

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Dr. Samparn Kumar S.

W Head of Department

1. Dr. Secure

Dr. Mini K.S

Teacher in charge

3

### STUDY ON THE INVERTEBRATE DIVERSITY FROM SELECTED SITES OF THURAVOOR PANCHAYAT

Submitted to

#### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

#### BACHELOR OF SCIENCE IN ZOOLOGY

By

#### **RUDHRA REGI**

#### Reg. No. 200021040750

Guided by

Dr. MINI K.D

Assistant Professor



DEPARTMENT OF ZOOLOGY

SREE SANKARA COLLEGE, KALADY

### STUDY ON THE INVERTEBRATE DIVERSITY FROM SELECTED SITES OF THURAVOOR PANCHAYAT

Submitted to

#### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

#### BACHELOR OF SCIENCE IN ZOOLOGY

By

#### **RUDHRA REGI**

Reg. No. 200021040750

Guided by

Dr. MINI K.D

Assistant Professor



#### DEPARTMENT OF ZOOLOGY

SREE SANKARA COLLEGE, KALADY

#### DEPARTMENT OF FOOLOGY

#### SREE SANKARA COLLEGE KALADY



This is to certify that the project work entitled 'Study on the invertebrate diversity from selected sites of Thuravoor Panchayat' is the work carried out by Rudhra Regi for the partial fulfilment of Bachelor of science in Zoology under my supervision in the Department of Zoology

Dr. Sampath Kumar S.

WHead of Department

Mummer Hizlanda

Br. Mini K.D

Teacher in charge

Valued 1 Dr Scemak Abouty Solation

DATE 7/2/2023

### BEHAVIOURAL STUDY OF RABBIT

## MAHATMA GANDIH UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

### BACHELOR OF SCIENCE IN ZOOLOGY

By

Alwin Davis Reg. No. 200021040729

> Gentlecoupy Drs. Minn (K.D) Assistanti Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY

# BEHAVIOURAL STUDY OF RABBIT

Submitted to

MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree BACHELOR OF SCIENCE IN ZOOLOGY

By

Alwin Davis Reg. No. 200021040729

Guided by

Dr. Mini K.D

Assistant Professor



### DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY 2020-2023



#### CERTIFICATE

This is to certify that the project work entitled **Behavioural study of rabbit** is the work carried out by **Alwin Davis** for the partial fulfilment of B. Sc. Degree course under my supervision in the Department of Zoology.

Dr. Sampath Kumar S. Dr. Mini K.D. Head of Department Teacher in charge Scene DATE 41 2023

### HOUSEHOLD SOLID WASTE MANAGEMENT PRACTICES – A SURVEY

### Submitted to

#### MAIIATMA GANDIII UNIVERSITY

In partial fulfilment of the requirements for the award of the forme

#### BACHELOR OF SCIENCE IN ZOOLOGY

By

Alvin Varghese

Reg. No. 200021040741

Guided by Dr. Mini K.D

Assistant Professor



DEPARTMENT OF ZOOL OGY

SREE SAMEARA COLLEGE KALADY

### HOUSEHOLD SOLID WASTE MANAGEMENT PRACTICES – A SURVEY

Submitted to

#### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

#### **BACHELOR OF SCIENCE IN ZOOLOGY**

By

**Alvin Varghese** 

Reg. No. 200021040741

Guided by

Dr. Mini K.D

Assistant Professor



### DEPARTMENT OF ZOOLOGY

SREE SANKARA COLLEGE, KALADY

#### DEPARTMENT OF ZOOLOGY

#### SREE SANKARA COLLEGE KALADY



#### CERTIFICATE

This is to certify that the project work entitled HOUSEHOLD SOLID WASTEMANAGEMENT PRACTICES – A SURVEY is the work carried out by Alvin Varghese for the partial fulfilment of B. Sc. Degree course under my supervision in the Department of Zoology.

11/2023

Dr. Sampfin Kumar S.

Head of Department Valued 1. Dr. Scamark 2, 914123 1. Materiality

Dr. Mini K.D

Teacher in charge

### COMPARATIVE STUDY OF DIFFERENT BREEDS OF CATTLE

Submitted to

#### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

### BACHELOR OF SCIENCE IN ZOOLOGY

By

Abhiranjana K U Reg. No. 200021040727

> Guided by Dr. Mini K.D Assistant Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY 2020-2023

### COMPARATIVE STUDY OF DIFFERENT BREEDS OF CATTLE

Submitted to

### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

### BACHELOR OF SCIENCE IN ZOOLOGY

By

Abhiranjana K U

### Reg. No. 200021040727

Guided by

Dr. Mini K.D

Assistant Professor



### DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY



#### CERTIFICATE

This is to certify that the project work entitled COMPARATIVE STUDY OF DIFFERENT BREEDS OF CATTLE is the work carried out by Abhiranjana K U for the partial fulfilment of B. Sc. Degree course under my supervision in the Department of Zoology

Dr. Sampath Kumar S. M Head of Department

Animum A.D. 2/1/2023

Dr. Mini K.D

Teacher in charge

Naluet 1. Dr. Seemek And State 1/2023 2 Dr. Squyatt Abate 1/4/25 DATE 2/1/2023

## ANT DIVERSITY OF KOODALAPAD, OKKAL PANCHAYATH

Submitted to

### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

BACHELOR OF SCIENCE IN ZOOLOGY

By

Swathi Sivan Reg. No. 200021040752

Guided by

Dr. Mini K.D Assistant Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY

# ANT DIVERSITY OF KOODALAPAD, OKKAL PANCHAYATH

Submitted to

## MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

BACHELOR OF SCIENCE IN ZOOLOGY

By

Swathi Siyan

Reg. No. 200021040752

Guided by

Dr. Mini K.D Assistant Professor



### DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY



#### CERTIFICATE

This is to certify that the project work entitled Ant diversity of Koodalapad, Okkal Panchayath is the work carried out by Swathi Sivan for the partial fulfilment of B Sc. Degree course under my supervision in the Department of Zoology

Dr. Sampath umar S.

Head of Department

Dr. Seemak H 23

DATE 25 /11/2022

1112022

Dr. Mini K.D Teacher in charge GROWTH AND BEHAVIOUR STUDY OF ROCKDOVE

Submitted to

#### MAHAJMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

#### BACHELOR OF SCIENCE IN ZOOLOGY

By NIXHIL STREPHEN Reg. No. 200021040755

> Ouided by Dr. Mini K.D Assistant Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY 2020-2023

### GROWTH AND BEHAVIOUR STUDY OF ROCKDOVE

Submitted to

### MAHATMA GANDHI UNIVERSITY

In partial fulfilment of the requirements for the award of the degree

### **BACHELOR OF SCIENCE IN ZOOLOGY**

By

#### NIKHIL STEEPHEN

#### Reg. No. 200021040733

Guided by

Dr. Mini K.D

Assistant Professor



DEPARTMENT OF ZOOLOGY SREE SANKARA COLLEGE, KALADY 2020-2023



#### CERTIFICATE

This is to certify that the project work entitled GROWTH AND BEHAVIOUR STUDY OF ROCK DOVE is the work Carried out by NIKHIL STEEPHEN for the partial fulfilment of B. Sc. Degree Course under my supervision in the Department of Zoology

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Dr. Sampath Kumar S.

Head of Department

Valued

DATE 27/1/2023)

40 1122

Dr. Mini K.D

Teacher in charge

1 De Seerne k Jul 1 Anton Hay



This is to certify that **ABHINAI K. ASHOKAN**, Adm. No. E7830, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ABHITH V. P.,** Adm. No. E7781, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **AKHILA UNNIKRISHNAN**, Adm. No. E8128, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ASHLIN M. S.,** Adm. No. E7862, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **FATHIMA K. S.**, Adm. No. E8168, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



# **SREE SANKARA COLLEGE, KALADY**

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# CERTIFICATE

This is to certify that **JOAN ELSA JOY**, Adm. No. E8137, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **MARIYA TOM**, Adm. No. E7971, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **MEENU PARVATHI V. B.**, Adm. No. E8253, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



# **SREE SANKARA COLLEGE, KALADY**

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# CERTIFICATE

This is to certify that **MEGHA SAJEEV**, Adm. No. E7955, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



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# CERTIFICATE

This is to certify that **NANDANA P. A.,** Adm. No. E8192, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **RTHUPARNA MADHAVAN**, Adm. No. E8120, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SHIFA NEZRIN T. S.,** Adm. No. E8109, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



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# CERTIFICATE

This is to certify that **SREELAYA K. V.,** Adm. No. E8333, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **ABHIMANNYA MOUJAN**, Adm. No. E8203, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ALIAS BABY**, Adm. No. E8343, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **AMEENA FATHIMA T. P.,** Adm. No. E8245, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ANANYA SHAINE**, Adm. No. E7970, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ARATHI AJAYAN**, Adm. No. E8179, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



**SREE SANKARA COLLEGE, KALADY** 

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## CERTIFICATE

This is to certify that **DISMA FRANCIS**, Adm. No. E8059, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **FATHIMA MANCY C. M.**, Adm. No. E8390, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



# **SREE SANKARA COLLEGE, KALADY**

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## CERTIFICATE

This is to certify that **KAVYA B.**, Adm. No. E7943, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that NAVYA MURUKAN, Adm. No. E8383, First Semester B.Sc. Zoology has completed a project titled 'Organic Manure Making' as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **NEHA ELDHO**, Adm. No. E8033, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **PRANAV R. MENON**, Adm. No. E8416, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **RESHMI P. R.**, Adm. No. E8136, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **RUBINA P. N.,** Adm. No. E8091, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **RUXANA K. S.,** Adm. No. E8107, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **SAFNA ABDULKAREEM**, Adm. No. E8345, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



# **SREE SANKARA COLLEGE, KALADY**

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## CERTIFICATE

This is to certify that **SONA SAJU**, Adm. No. E7940, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **SREELAKSHMI M BIJU**, Adm. No. E8022, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **KEERTHANA SATHYAN**, Adm. No. E8340, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MEGHA E. S.,** Adm. No. E7938, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **MIDHULA K. K.,** Adm. No. E7960, First Semester B.Sc. Zoology has completed a project titled **'Organic Manure Making'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.

Dr. Minimol K. C. Course Coordinator



Dr. Preethi Nair



This is to certify that **ABHINAI K. ASHOKAN**, Adm. No. E7830, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ABHITH V. P.**, Adm. No. E7781, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **AKHILA UNNIKRISHNAN**, Adm. No. E8128, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ASHLIN M. S.**, Adm. No. E7862, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **FATHIMA K. S.**, Adm. No. E8168, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **JOAN ELSA JOY**, Adm. No. E8137, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MARIYA TOM**, Adm. No. E7971, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MEENU PARVATHI V. B.**, Adm. No. E8253, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MEGHA SAJEEV**, Adm. No. E7955, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **NANDANA P. A.**, Adm. No. E8192, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **RTHUPARNA MADHAVAN**, Adm. No. E8120, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SHIFA NEZRIN T. S.**, Adm. No. E8109, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SREELAYA K. V.**, Adm. No. E8333, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ABHIMANNYA MOUJAN**, Adm. No. E8203, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ALIAS BABY**, Adm. No. E8343, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **AMEENA FATHIMA T. P.**, Adm. No. E8245, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ANANYA SHAINE**, Adm. No. E7970, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **ARATHI AJAYAN**, Adm. No. E8179, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **DISMA FRANCIS**, Adm. No. E8059, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **FATHIMA MANCY C. M.**, Adm. No. E8390, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **KAVYA B.**, Adm. No. E7943, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **NAVYA MURUKAN**, Adm. No. E8383, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **NEHA ELDHO**, Adm. No. E8033, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **PRANAV R. MENON**, Adm. No. E8416, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **RESHMI P. R.**, Adm. No. E8136, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **RUBINA P. N.**, Adm. No. E8091, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **RUXANA K. S.**, Adm. No. E8107, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SAFNA ABDULKAREEM**, Adm. No. E8345, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SONA SAJU**, Adm. No. E7940, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **SREELAKSHMI M BIJU**, Adm. No. E8022, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **KEERTHANA SATHYAN**, Adm. No. E8340, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MEGHA E. S.**, Adm. No. E7938, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal



This is to certify that **MIDHULA K. K.**, Adm. No. E7960, Second Semester B.Sc. Zoology has completed a project titled **'Organic Farming'** as part of the Massive Open Online Course of Mahatma Gandhi University on 'Organic Farming' during the academic year 2022-23.



Dr. Preethi Nair Principal

# **TOUR REPORT**

Final Year B.Sc Zoology 2022-23

Dept of Zoology, Sree Sankara College, Kalady

FROM : - Sreelakshmi Madhu, DC3 Zoology

SUBJECT : - Study Tour Report to Goa

DATE : - 24/02/2023 (Friday) to 01/03/2023 (Wednesday)

On February 24, 2023 we started our journey by train and reach our destination on 25<sup>th</sup> morning by 8 am.

Day 1:-25/02/2023 (Saturday)

We visited Vagatoor rocky shore. It's a very clean and beautiful place. We could find few gastropods and bivalve shells. Rock oyster shells were seen attached to the rocks along with them, few barnacles were also seen.

After this we visited Sandy Beach at Miramer. The beach was diverse with many varieties of molluscs and shells. Few gastropods and bivalves were seen. Some shells were also collected. No live specimens were collected and only they were observed in situ condition.

We visited the Mandovi River Estuary and we could see the confluence of the river and the water of the Bay. The sea water was very salty. In the low tide the sandy shore was visible with the receding waters becoming the feeding ground for the birds crustaceans. At few points we could find smaller fishes and prawns larvae and crabs.

Day 2:- 26/02/2023 (Sunday)

On our second day of trip, we visited Dr.Salim Ali Bird Sanctuary, Choroa by taking Raibander ferry. Salim Ali bird sanctuary is an estuarine mangrove habitat, which is declared as the bird sanctuary. The sanctuary has a paved walkways that runs between mangroves of different species including *Kandelia candel*, the cymed mangrove. We observed varieties of several crabs and fishes like Mullet, Green chromide etc. along with some birds like Asian openbill, Grey heron, Kingfisher, Brahminy kite, Black-tailed Godwil, Common Redshank, Lesser Adjutant etc. Fidler crabs were in large number and were active and the mating calls of crabs were very audible along with the waving of their large appendage. We spent a lot of time there and the guide explained to us about the various mangrove species and their importance to the ecosystem. They also explained to us the different kinds of birds and reptiles and crustaceans found in this area. Some of them are listed below.

• Arthropods- Cumacea, Hermit crab, Shrimp, Brachyura

• Birds- Asian openbill, Whiskered torn, Grey heron, kingfisher, Brahminy kite, Black-tailed godwil, Common redshank, Lesser adjutant.

- Reptiles- Beaked sea snake, Wart snake
- Gastropod- Trochus

Day 3:- 27/02/2023 (Monday)

On our third day, in the morning, we visited the headquarters of National Institute of Oceanography. Under the guidance of Dr. Jagdeesh Patil we learned more about the field of Oceanography and the museum had many resources to study about them.

More information about sampling of water using sampling bottles and deep sea sampling were explained. The simple operation means you simply lower the sampler to the required depth and then pull it out. As the sampler is lowered both the top and bottom valve opens allowing liquid to flow through. When you pull up the rope they valves close trapping the sample inside.

In the afternoon we visited ICAR-Central Institute of Fisheries Technology. Several fishes were cultivated in high quantities and the breeding of several varieties of fish was also observed. Feed production and aquatic plant cultivation were also done there. The fish feeds were blended, mixed and made into small pellet forms and is dried. The equipment required for the food production was also shown.

Koi carp, Iridescent shark catfish, Melon barb, Marbled catfish, Dandia, Narayan barb, Sword tail, Greenstripe barb, Sucker fish, Blackspot barb, Guppy, Black ghost knightfish, Elongate glassy perchlet, Black moor goldfish, Red cap goldfish, Cat fish etc were seen and their breeding was also observed. some species like Lates calcarifer, Pangasius hypophthalamus, Tilapia, Dandia etc were cultivated in large amount.

#### Day 4:-28/02/2023 (Tuesday)

We started our journey for our final day at goa. As decided earlier to visit Mahavir wildlife sanctuary which was around 60 kms from Panjim. We decided to trek a short distance of 4 km in the area of forest near Tabra Suli. This place was relatively greener due to the small rivulet with its minimal water flow. We continued alongside the river and we could see the traditional bamboo fishing net and also saw the traditional method of crab fishing in the river. A localite explained to us the change in the climate and the reduced flow pattern of the river water and the negligence of the govt to conserve water for agricultural purposes and hence the water flow down the river during the rainy season and during dry summer they are left with no water for agriculture or crops.

As most of the forest was dry, trekking was only possible along the river side. We walked a distance of nearly two km but could only find a few monkeys, langur, few birds. And one giant squirrel. We could collect and observe few freshwater shrimps and crabs and also a few loaches and fishes inhabiting the river water.

We enjoyed the freshness and beauty of the nature. Wide varieties of plants and many other organisms were observed. After a beautiful sunset on the colva beach we left Goa and got back the next day to our homes.

Though the study tour gave us more knowledge the most enjoyable part of the tour was the time that we got each day in the evenings to visit the beaches and churches of Goa and see the lifestye and culture there.

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