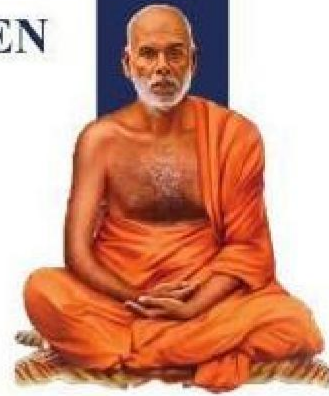


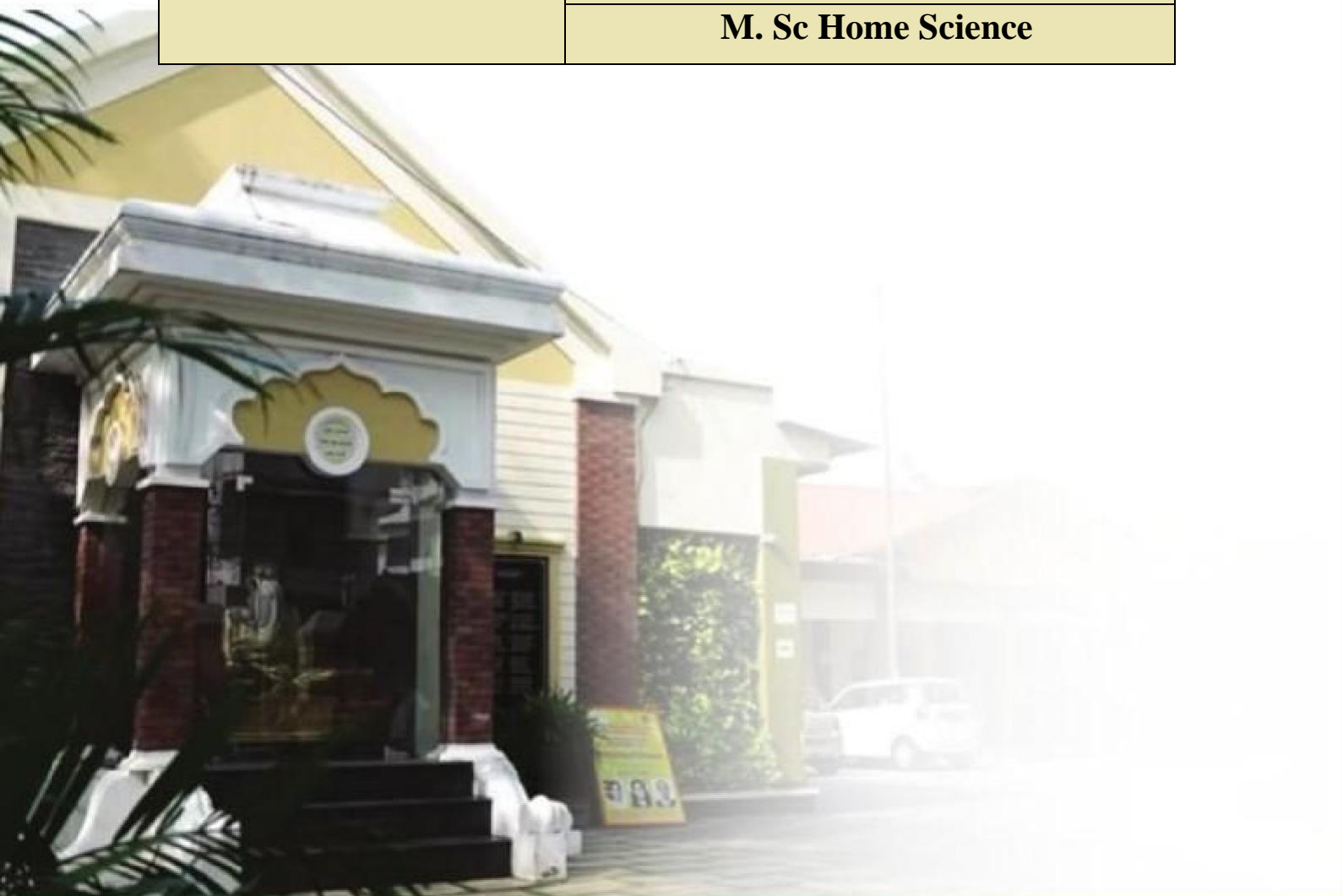


**SREE NARAYANA COLLEGE FOR WOMEN**  
KOLLAM, KERALA- 691 001



**1.3.3. Number of students undertaking project work/field work / internships**

<b>POST GRADUATE COURSES</b>	<b>MA English</b>
	<b>MA Economics</b>
	<b>M. Sc. Physics</b>
	<b>M.Sc. Chemistry</b>
	<b>M. Sc Home Science</b>



**Unveiling Shadows: Exploring Mental Illness and  
Challenging Stigmas in *Good Will Hunting***

Dissertation submitted to the University of Kerala in partial fulfilment  
of the requirements for the award of the Degree of

**Master of Arts**

**In**

**English Language and Literature**

**Submitted by**

**AAYISHA A**

**Candidate Code : 53022129001**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

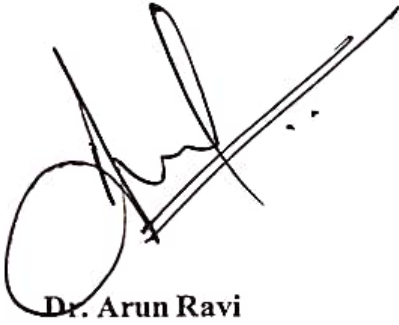
**Department of English**

**Sree Narayana College for Women, Kollam**

**September 2024**

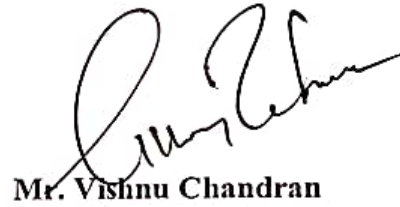
## Certificate

This is to certify that the dissertation entitled **Unveiling Shadows: Exploring Mental Illness and challenging stigmas in *Good Will Hunting*** is a record of studies and research work carried by **Ms. Aayisha A** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Mr. Vishnu Chandran** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.



**Dr. Arun Ravi**

Head of the Department  
Sree Narayana College for  
Women  
Kollam



**Mr. Vishnu Chandran**

Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Unveiling Shadows: Exploring Traumatic Journeys and  
Resilience in: *The Girl on the Train***

Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirements for the Degree of

**Master of Arts**

**In**

**English Language and Literature**

**Submitted by**

**ABHIRAMI B**

**Candidate Code : 53022129002**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English**

**Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Unveiling Shadows: Exploring Traumatic Journeys and Resilience in: The Girl on the Train** is a record of studies and research work carried by Ms. Abhirami B at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Ms. Arsha S S and submitted to the University of Kerala as partial fulfilment of the requirements for the Degree of Master of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Dr. Arun Ravi  
As HoD

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for

Women

Kollam



*Ms. Arsha S S*

**Ms. Arsha S S**

Assistant Professor

Sree Narayana College for

Women

Kollam

**Godzilla as Ecocatalyst: A Critical Analysis of *Godzilla 2000:***

***Millennium and Godzilla Minus one***

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**AISWARYA S**

**Candidate Code : 53022129003**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Godzilla as Ecocatalyst: A Critical Analysis of *Godzilla 2000: Millennium* and *Godzilla Minus one*** is a record of studies and research work carried by Ms. Aiswarya S, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Dr. Aparna Ajith and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Dr. Arun Ravi  
for HOD

Dr. Arun Ravi

Head of the Department

Sree Narayana College for Women

Kollam

*Dr. Aparna Ajith*

Dr. Aparna Ajith

Assistant Professor

Sree Narayana College for Women

Kollam



**Beyond the Periphery : Exploring Subaltern Experiences in Select  
Tamil Movies *Karnan* and *Asuran***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts  
In  
English Language and Literature**

**Submitted by  
AKSHAYA S L**

**Candidate Code : 53022129004  
Exam Code : 53022401  
Course Code : 530  
Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam  
August 2024**



## Certificate

This is to certify that the dissertation entitled "Beyond the Periphery : Exploring Subaltern Experiences in Select Tamil Movies *Karnan* and *Asuran*" is a record of studies and research work carried by Ms. Akshaya S L, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Ms. Jayalekshmi. S and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.



**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam



**Ms. Jayalekshmi. S**

Assistant Professor

Sree Narayana College for Women

Kollam



**The Zombie Apocalypse: The Environmental Warning Behind  
Zombie Narratives**

Dissertation submitted to the University of Kerala in Partial fulfilment of the  
requirement for the  
Award of the Degree of  
Master of Arts in  
English Language and Literature

**Submitted by**

**AMALASIVAN**

**Candidate code : 53022129005**  
**Exam code : 53022401**  
**Course code : 530**  
**Subject code : EL 545**

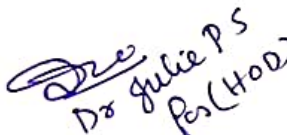
**Department of English**


**Sree Narayana College for Women, Kollam**

**September 2024**

## Certificate

This is to certify that the dissertation entitled “**The Zombie Apocalypse: The Environmental Warning Behind Zombie Narratives**” is a record of studies and research work carried by Ms. Amalasilan, at the P.G Department of English, Sree Narayana College for Women, Kollam, under the guidance of Mrs. Jayalekshmi. S and submitted to the University of Kerala as partial fulfilment of the requirement for the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
Head of the Department  
Sree Narayana College for Women  
Kollam

  
Mrs. Jayalekshmi. S  
Assistant Professor  
Sree Narayana College for Women  
Kollam



**Portrayal of Bold Women in Malayalam Cinemas and  
the Hidden Misogyny**

Dissertation submitted to the University of Kerala in partial fulfillment  
of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

Submitted by

**AMAYA CHANDRAN K**

**Candidate Code : 53022129006**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Portrayal of Bold Women in Malayalam Cinemas and the Hidden Misogyny** is a record of studies and research work carried by **Ms. Amaya Chandran K** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Miss. Aparna S Anil** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

*Dr*  
*Dr. Arun Ravi PS*  
*(for HOD)*

**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam

*Aparna SA*

**Miss. Aparna S Anil**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Beyond Physical Injury: Deconstructing Trauma and  
Delusional Pain in *The Evil Dead* and *Evil Dead Rise***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**ANJALI P VINOD**

**Candidate Code : 53022129007**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English**

**Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Beyond Physical Injury: Deconstructing Trauma and Delusional Pain in *The Evil Dead* and *Evil Dead Rise*** is a record of studies and research work carried by Ms. **Anjali P Vinod** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Ms. **Nayana Konath** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Dr. Arun Ravi  
for HOD

**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam



*Ms. Nayana Konath*

**Ms. Nayana Konath**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam

**EXPLORING THE MOTIVES OF CRIME AND CAUSE OF STRAIN  
IN ALEX MICHAELIDES' NOVELS *THE SILENT PATIENT* AND  
*THE MAIDENS***

**Dissertation submitted to the University of Kerala in partial fulfilment of  
the requirements for the award of the degree of**

**Master of Arts**

**In**

**English Language and Literature**

**ANUSHA M. S**

Course Code : 530

Exam Code : 53022401

Subject Code : EL 545



**University of Kerala  
Thiruvananthapuram**



**Navigating the Unseen: Sensory Deprivation, Trauma Survival**

***In Bird Box and A Quiet Place***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts**

**In**

**English Language and Literature**

**Submitted by**

**ARCHA S MADHU**

**Candidate Code: 53022129010**

**Exam Code : 53022401**

**Course Code: 530**

**Subject Code: EL 545**

**Department of English**

**Sree Narayana College for Women, Kollam**

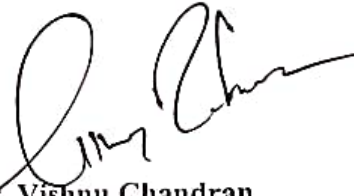
**August 2024**

## Certificate

This is to certify that the dissertation entitled **Navigating the unseen: Sensory Deprivation Trauma Survival in *Bird Box* and *A Quiet Place*** is a record of studies and research work carried by **Ms. Archa S Madhu** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Mr. Vishnu Chandran** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.



**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam



**Mr. Vishnu Chandran**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Portrayal Of Zoolingualism In Movies: A Study Based  
on *Aquaman*, *Aquaman and The Lost Kingdom* and  
*Karthikeya 2***

Dissertation submitted to the University of Kerala in Partial fulfilment  
of the requirement of the Award of the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**B RESHMI**

**Candidate Code : 53022129011**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women , Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled "Portrayal of Zoolingualism In Movies: A Study Based on *Aquaman*, *Aquaman and The Lost Kingdom* and *Karthikeya 2* " is a record of studies and research work carried by Ms. B Reshmi, at the P.G Department of English, Sree Narayana College for Women, Kollam, under the guidance of Dr. Lakshmipriya P S and submitted to the University of Kerala as partial fulfilment of the requirement for the Degree of Master of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Dr. Arun Ravi  
for HOD

Dr. Arun Ravi

Head of the Department

Sree Narayana College for Women  
Kollam

*Dr. Lakshmipriya P S*

Dr. Lakshmipriya P S


Assistant Professor

Sree Narayana College for  
Women Kollam



## Certificate

This is to certify that the dissertation entitled **Exploring the Complexities of Migration Through Graphic Narratives: An Analysis of *Welcome to the New World* and *The Arrival*** is a record of studies and research work carried by Ms. **Bhagya Lekshmi S**, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Mrs. **Julie P S** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

  
Dr. Julie P S  
for HOD

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam





**Mrs. Julie P S**

Assistant Professor

Sree Narayana College for Women

Kollam

**Exploring the Complexities of Migration Through Graphic  
Narratives: An Analysis of *Welcome to the New World* and *The  
Arrival***

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**BHAGYA LEKSHMI S**

**Candidate Code : 53022129012**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

**Coping Mechanism: Surviving the Dark in  
Emma Donoghue's *Room***

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**DIVYA A S**


**Candidate Code : 53022129013  
Exam Code : 53022401  
Course Code : 530  
Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Coping Mechanism: Surviving the Dark in Emma Donoghue's *Room*** is a record of studies and research work carried by Ms. Divya A S, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Dr. Sruthi Nandan** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
As HOD

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam





**Dr. Sruthi Nandan**

Assistant Professor

Sree Narayana College for Women

Kollam



**Unravelling the Horrors and Traumas of Acid Attack through the**

**Movies *Vazhakku Enn 18/9*, *Uyare* and *Chhapaak***

**Dissertation**

**Submitted to the University of Kerala**

**in partial fulfilment of the requirements for the Degree of Master of**

**Arts in**

**English Language and Literature**

**Submitted by**

**Firdousi S**

**Candidate Code: 53022129014**

**Examination Code: 53022401**

**Course Code: 530**


**Subject code: EL. 545**

**Sree Narayana College for Women, kollam**

**August 2024**

## Certificate

This is to certify that the project entitled "Unravelling the Horrors and Traumas of Acid Attack through the Movies *Vazhakku Enn 18/9*, *Uyare* and *Chhapaak*" is a record of study carried out by Firdousi S at the Department of English, Sree Narayana College for Women, Kollam under my guidance and submitted to the University of Kerala in partial fulfilment of the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
for HOD

Dr. Arun Ravi  
Head of the Department of English  
Sree Narayana College for Women  
Kollam



Dr. Aparna Ajith  
Assistant Professor  
Sree Narayana College for women  
Kollam



**Redefining Motherhood: Understanding PPD in *Dear Scarlet***

*The Story of my postpartum depression*

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**KARTHIKA V**

**Candidate Code : 53022129015**

**Exam Code : 53022401**

**Course Code : 530**

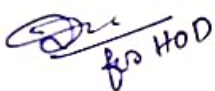
**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Redefining Motherhood: Understanding PPD in *Dear Scarlet The Story of my postpartum depression*** is a record of studies and research work carried by **Ms. Karthika V**, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Dr. Arun Ravi** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.


*Dr Julie PS*  
  
*As HOD*

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam

  
*Dr Julie PS*

**Dr. Arun Ravi**

Assistant Professor & HOD

Sree Narayana College for Women

Kollam



**Shadows of Womanhood: Memory as Trauma in Kazuo  
Ishiguro's *A Pale View of Hills***

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**KARTHIKA V S**

**Candidate Code : 53022129016  
Exam Code : 53022401  
Course Code : 530  
Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Shadows of Womanhood: Memory as Trauma in Kazuo Ishiguro's *A Pale View of Hills*** is a record of studies and research work carried by Ms. **Karthika V S**, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Dr. Priyanka M C** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

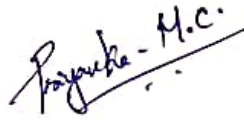
  
Dr. Arun Ravi  
for HOD

Dr. Arun Ravi

Head of the Department

Sree Narayana College for Women

Kollam

  
Dr. Priyanka M C

Dr. Priyanka M C

Assistant Professor

Sree Narayana College for Women

Kollam



**Unearthing the darkness: Folk horror in *Midsommar* and  
*Bramayugam***

Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirements for the Degree of

**M A Degree Programme**

**In**

**English language and literature**

**Submitted by**

**KAVYA VIVEK**

**Candidate Code : 53022129017**

**Exam Code : 53022401**

**Course Code : 530**

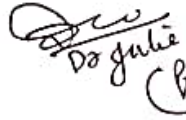
**Subject Code : EL545**

**Department of English**

**Sree Narayana College for Women, Kollam**

## Certificate

This is to certify that the dissertation entitled **Unearthing the darkness: Folk horror in *Midsommar* and *Bramayugam*** is a record of studies and research work carried by **Ms. Kavya Vivek**, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Ms. Gowri Praveen** and submitted to the University of Kerala as partial fulfilment of the requirements for the Degree of Masters of Arts in English Language and Literature.


  
Dr. Arun Ravi  
(As HOD)

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam



**Ms. Gowri Praveen**

Assistant Professor

Sree Narayana College for Women

Kollam





**Mindscales of Trauma: A Psychoanalytic Journey through**

***Ratsasan and Por Thozhil***

Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirements for the Degree of

**Master of Arts**

**In**

**English Language and Literature**

**Submitted by**

**KEERTHANA T**

**Candidate Code : 53022129018**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**


**Department of English**

**Sree Narayana College for Women, Kollam**


**August 2024**

## Certificate

This is to certify that the dissertation entitled **Mindscapes of Trauma: A Psychoanalytic Journey through *Ratsasan* and *Por Thozhil*** is a record of studies and research work carried by Ms. Keerthana T at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of Mr. Indrajith R and submitted to the University of Kerala as partial fulfilment of the requirements for the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
for HOD

**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College  
for Women  
Kollam

  
Mr. Indrajith R

Assistant Professor  
Sree Narayana College  
for Women  
Kollam



**Unpacking the Intersectional Experience: A Critical Race**

**Theory Exploration of *The Hate U Give***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts in  
English Language and Literature**

Submitted by  
**LEKSHMY P B**

**Candidate Code : 53022129019**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**


**August 2024**

## Certificate

This is to certify that the dissertation entitled **Unpacking the Intersectional Experience: A Critical Race Theory Exploration of *The Hate U Give*** is a record of studies and research work carried by **Ms. Lekshmy P B** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Miss. Nayana konath** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
for HOD

**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam



**Miss. Nayana konath**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Gendered Complicity: A Study of Gender and The Banality of  
Evil in The Zone of Interest**

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts in  
English Language and Literature**

Submitted by

**MANJIMA B**

**Candidate Code : 53022129020**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate

This is to certify that the dissertation entitled **Gendered Complicity: A Study of Gender and The Banality of Evil in *The Zone of Interest*** is a record of studies and research work carried by **Ms. Manjima B** at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Dr. Sruthi Nandan** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Do Justice PS  
for HOD

**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam

*Dr. Sruthi Nandan*

**Dr. Sruthi Nandan**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**The Unseen Psyche: A Psychoanalytic Exploration of Serial  
Killers in South Indian Cinema through  
*Memories and Garuda***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts in  
English Language and Literature**

Submitted by  
**NANDANAASHOKAN**

**Candidate Code : 53022129021**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

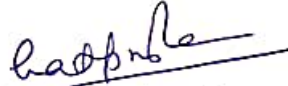
## Certificate

This is to certify that the dissertation entitled **The Unseen Psyche: A Psychoanalytic Exploration of Serial Killers in South Indian Cinema** through *Memories and Garudan* is a record of studies and research work carried by Ms. Nandana Ashokan at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Dr. Lakshmipriya PS** and submitted to the University of Kerala as partial fulfillment of the requirements for the Degree of Master of Arts in English Language and Literature.

  
Dr. Arun Ravi  
Head of the Department

Dr. Arun Ravi  
Head of the Department  
Sree Narayana College for  
Women  
Kollam





Dr. Lakshmipriya PS  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Exploring Toxic Masculinity and Male Dominance: An Analysis on *Animal*  
and *Arjun Reddy***

Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirements of the award of the Degree of

**Master of Arts  
in  
English Language and Literature**

**Submitted By  
SALABHA SAJEEV**

**Course code : 530  
Exam code : 53022401  
Subject code : EL 545**

**Sree Narayana College for Women, Kollam**

**August 2024**

## Certificate


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Dr. Arun Ravi  
for HoD

Head of the Department  
Sree Narayana College for Women  
Kollam

Dr. Arun Ravi

Head of the Department  
Sree Narayana College for Women  
Kollam

  
Dr. Arun Ravi



**Reimagining Feminism And Cultural Identity In The  
Works Of Monica Ali And Zadie Smith**

Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirements for the Degree of

**M A Degree Programme**

**In**

**English language and literature**

**Submitted by**

**SHAHANA SHAMSUDEEN**

**Candidate Code : 53022129023**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL545**

**Department of English**

**Sree Narayana College for Women, Kollam**

## Certificate

This is to certify that the dissertation entitled **Reimagining Feminism and Cultural Identity in the Works of Zadie Smith and Monica Ali** a record of studies and research work carried by **Ms. Shahana Shamsudeen**, at the Post Graduation Department of English, Sree Narayana College for Women, Kollam, under the guidance of **Ms. Bhagyalekshmi R** and submitted to the University of Kerala as partial fulfilment of the requirements for the Degree of Masters of Arts in English Language and Literature.

*Dr. Arun Ravi*  
Dr. Arun Ravi  
Pos 130D

**Dr. Arun Ravi**

Head of the Department  
Sree Narayana College for Women  
Kollam

*Ms. Bhagyalekshmi R*

**Ms. Bhagyalekshmi R**

Assistant Professor  
Sree Narayana College for Women  
Kollam



**Dreamscapes and Time Loops: Analyzing Reality and Lucid  
Dreaming in *Pendulum* and *Inception***

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**SRUTHI SANAL**

**Candidate Code : 53022129024**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

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Dr. Arun Ravi  
for HOD

Dr. Arun Ravi

Head of the Department

Sree Narayana College for Women

Kollam

  
Mr. Indrajith R

Assistant Professor

Sree Narayana College for Women

Kollam



**Reclaiming the Crown: Baldness, Beauty and the Journey to  
Self- Acceptance**

Dissertation submitted to the University of Kerala in partial  
fulfilment of the requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**SRUTHY M**

**Candidate Code : 53022129025**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

**Department of English  
Sree Narayana College for Women, Kollam**

**August 2024**

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Dr. Arun Ravi PS  
for HOD

**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam



Mrs. Aswathy S M

**Mrs. Aswathy S M**

Assistant Professor

Sree Narayana College for Women

Kollam



**Rhythmic Renegades : K - Pop Embracing Contradictions,  
Subverting Stereotypes**

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts  
In  
English Language and Literature**

**Submitted by**

**VRINDHA VENUGOPAL D**

**Candidate Code : 53022129026**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

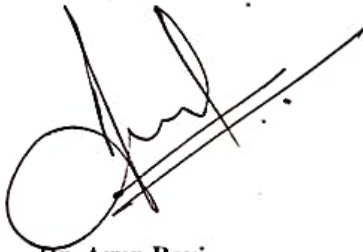
**Department of English**

**Sree Narayana College for Women, Kollam**

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**Dr. Arun Ravi**  
Head of the Department  
Sree Narayana College for  
Women  
Kollam



**Ms. Aswathy S M**  
Assistant Professor  
Sree Narayana College for  
Women  
Kollam



**Unveiling the Shades of Brainstorming The Art of Creation &  
Destruction Evaluated by Psycho-Behavioral Comparison of  
Characters from Matthew Brown's *The Man Who Knew  
Infinity* and Christopher Nolan's *Oppenheimer***

Dissertation submitted to the University of Kerala in partial fulfillment of the  
requirements for the Degree of

**Master of Arts in  
English Language and Literature**

**Submitted by**

**VYSHNAVI S GOPAN**

**Candidate Code : 53022129027**

**Exam Code : 53022401**

**Course Code : 530**

**Subject Code : EL 545**

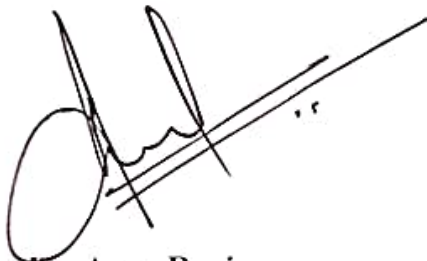
**Department of English**

**Sree Narayana College for Women, Kollam**

**August 2024**

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**Dr. Arun Ravi**

Head of the Department

Sree Narayana College for Women

Kollam



**Dr. Priyanka M C**

Assistant Professor

Sree Narayana College for Women

Kollam



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Counter signed by

Dr Sindhu Pratap

Head of the Department (HOD)

Department of Economics

PRIYANKA

Assistant Professor

Department of Economics

## CERTIFICATE

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Dr. Sindhu Pratap  
Head of the Department (HOD)  
Department of Economics

Ms .VARSHA GEETH  
Assistant professor  
Department of Economics

## CERTIFICATE

This is to certify that this dissertation entitled "A STUDY ON THE INFLUENCE OF DIGITAL MARKETING ON CONSUMER PURCHASING BEHAVIOUR IN KOTTARAKKARA MUNICIPALITY" Is an authentic record work carried out by ASWATHY.V of the DEPARTMENT OF ECONOMICS, SREE NARAYANA COLLEGE FOR WOMEN KOLLAM under my guidance and supervision and this part of work has not been presented for any degree.

Counter signed by

Dr. Sindhu Pratap

Head of the Department (HOD)

Department of Economics

Dr. PRABHAVATHY.C

Assistant professor

Department of Economics

## CERTIFICATE

This is to certify that this dissertation entitled "**NUDGING IN HEALTHY FOOD CHOICE: A CASE STUDY WITH SPECIAL REFERENCE TO KOLLAM CORPORATION**". Is an authentic record of work carried out by **ASWATHY. B** of the **DEPARTMENT OF ECONOMICS, SREE NARAYANA COLLEGE FOR WOMEN KOLLAM** under my guidance and supervision and this part of work has not been presented for any degree.

KOLLAM

PRIYANKA

Assistant professor

Department of Economic

Counter signed by:

Dr. SINDHU PRATAP

Head of the Department

(HOD) Department of

Economics



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This is to certify that this dissertation entitled "WOMEN CONSUMER'S BEHAVIOUR TOWARDS PURCHASING LUXURY FASHION APPAREL BRANDS IN KOLLAM DISTRICT" Is an authentic record work carried out by ANUANAND of the DEPARTMENT OF ECONOMICS, SREE NARAYANA COLLEGE FOR WOMEN KOLLAM under my guidance and super vision and this part of work has not been presented for any degree.

Counter signed by

Dr. Sindhu Pratap

Head of the Department (HOD)

Department of Economics

PARVATHY AV

Assistant professor

Department of Economics

## **CERTIFICATE**

This is to certify that this dissertation entitled "**ONLINE CONSUMPTION PATTERN AMONG COLLEGE STUDENTS : A STUDY CONDUCTED IN KOLLAM DISTRICT**" is an authentic record of work carried out by **Arya Dev** of the **DEPARTMENT OF ECONOMIS, SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM** under my guidance and supervision and this part of work has not been presented for any degree.

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**DR.SINDHU PRATAP**

Head of the department (HOD)

Department of Economics

**SREEMANKA. J**

Assistant professor

Department of Economics

## CERTIFICATE

This is to certify that the project titled "CONSUMERS BEHAVIORS TOWARDS ONLINE ADVERTISEMENT: A CASE STUDY OF MYNAGAPPALLY PANCHAYAT IN KOLLAM DISTRICT" is an authentic record of the work carried by BODHI PRIYA (55122129012) of fourth Semester MA - behavioral Economics and data science, Department of Economics, Sree Narayana College For Women under my Supervision and guidance in Partial fulfillment of the requirements for the award of the degree of Master of Arts in Behavioral Economics and Data Science of University of Kerala and that us no part of this work has been Submitted for any Other degree.

Kollam

Ms. VARSHA GEETH

Assistant Professor

Department of Economics

Sree Narayana College for women,

Kollam

## CERTIFICATE

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KOLLAM

ANILA

Assistant professor

Department of Economic

Counter signed by:

Dr. SINDHU PRATAP

Head of the Department

(HOD) Department of

Economics

## CERTIFICATE

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**KOLLAM**

**PARVATHY A.V**

Assistant Professor

Department of Economics

Sree Narayana College for Women

Kollam

## CERTIFICATE

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Counter Signed by

**Dr. SINDHU PRATAP**

Head of the Department (HOD)

Department of Economics

**ANILA P.S**

Assistant Professor

Department of Economics

Sree Narayana College for women,

Kollam

## CERTIFICATE

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Counter Signed by  
**Dr. SINDHU PRATAP**  
Head of the Department (HOD)  
Department of Economics

**Dr. PRABHAVATHY**  
Assistant Professor  
Department of Economics  
Sree Narayana College for women,  
Kollam

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Prof Dr. Sindhu Pratap  
Head of the Department (HOD)  
Department of Economics

Dr.APARNA DAS  
Assistant professor  
Department of Economics



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**Dr. SINDHU PRATAP**  
**Head of the Department**  
**Department of Economics**

**Counter signed by:**

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**Head of the Department (HOD)**

**Department of Economics**

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**Dr. SINDHU PRATAP**  
Head of the Department (HOD)  
Department of Economics

**Dr. APARNA DAS**  
Assistant Professor  
Department of Economics  
Sree Narayana College for women,  
Kollam

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Prof.Dr. Sindhu Pratap

Head of the Department (HOD)

Department of Economics

Dr APARNA DAS

Assistant professor

Department of Economics

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Dr. Sindhu Pratap  
Head of the Department (HOD)  
Department of Economics

SREEMANKA J  
Assistant professor  
Department of Economics

## CERTIFICATE

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Counter signed by,  
DR. SINDHU PRATAP  
Head of The Department (HOD)  
Department of Economics

Dr. APARNA PADMA  
Assistant Professor  
Department of Economics  
Sree Narayana College for Women,  
Kollam

## CERTIFICATE

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Counter Signed by,  
Dr. SINDHU PRATHAP,  
Head of the Department  
(HOD)  
Department of Economics

Assistant Professor  
PRIYANKA  
Assistant Professor  
Department of Economics  
Sree Narayana College for women,  
Kollam

## CERTIFICATE

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Counter signed by  
Dr. Sindhu Pratap  
Head of the Department (HOD)  
Department of Economics

Ms.PARVATHY A.V  
Assistant professor  
Department of Economics

## **CERTIFICATE**

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Counter signed by,

**DR.SINDHU PRATAP**

Head of the department (HOD)

Department of Economics

**SREEMANKA. J**

Assistant professor

Department of Economics



## CERTIFICATE

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KOLLAM

Dr. PRABHAVATHY

Assistant professor

Department of Economic

Counter signed by:

Dr. SINDHU PRATAP

Head of the Department

(HOD) Department of

Economics

## CERTIFICATE

This is to certify that this dissertation entitled "A STUDY ON THE IMPACT OF SOCIAL MEDIA USAGE ON ACADEMIC PERFORMANCE OF POST GRADUATE STUDENTS IN CHIRAYINKEEZH TALUK; TRIVANDRUM DISTRICT" Is an authentic record of work carried out by Mrs. **GAYATHRI G.P** of the **DEPARTMENT OF ECONOMICS, SREE NARAYANA COLLEGE FOR WOMEN KOLLAM** under my guidance and supervision and this part of work has not been presented for any degree.

KOLLAM

Ms. **VARSHA GEETH**  
Assistant professor  
Department of Economics

Counter signed by  
**Dr. Sindhu Pratap**  
Head of Department (HOD)  
Department of Economics

**STRUCTURAL AND OPTICAL CHARACTERIZATION  
OF  $MFe_2O_4$  (M = Mn, Ni) SPINEL FERRITES**

**PROJECT REPORT**

*Submitted in partial fulfilment of the requirement for the award for the Degree of  
Master of Science in Physics under CBCSS to University of Kerala*



Submitted by

**DEVIKA GOPAN**

**Register No: 63022129015**

Under the Guidance of

**Dr I. Hubert Joe**

**Head and Associate Professor,**

**Department of Nanoscience & Nanotechnology**

**University of Kerala**

**Kariavattom**



**DEPARTMENT OF PHYSICS**  
**SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM**  
**2022-2024**

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This is to certify that the this is a bonafide certificate of the project work entitled “**Structural and Optical characterization of  $MFe_2O_4$  (M = Mn, Ni) spinel ferrites**” is an authentic record of the project work carried out by DEVIKA GOPAN (Candidate code: 63022129015) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master of Degree in Physics under the University of Kerala at Sree Narayana College for Women, Kollam, under the guidance of Dr. I. Hubert Joe, Dept: of Nanoscience and Nanotechnology, University of Kerala, Kariavattom.

Ms. RESMI.S

Assistant Professor and Head

Department of Physics

SNCW, Kollam

Evaluated by

1)

2)



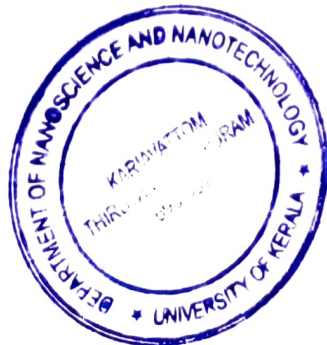
**DEPARTMENT OF NANOSCIENCE & NANO TECHNOLOGY**  
**UNIVERSITY OF KERALA**  
**KARIAVATTOM**  
**THIRUVANANTHAPURAM-695581**




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Date:27/08/2024



  
Dr. I. Hubert Joe  
Head of the Department  
Dept: of Nanoscience  
and Nanotechnology,  
University of Kerala  
Kariavattom

**Synthesis And Optical Studies Of  
Nanostructured ZnO**

**PROJECT REPORT**

*Submitted in partial fulfilment of the requirement for the award for the Degree of  
Master of Science in Physics under CBCSS to University of Kerala*



Submitted by

**ANU A S**

**Register No: 63022129010**

Under the Guidance of

**Dr V BIJU**

**Head and Associate Professor,**

**Department of Physics**

**University of Kerala**

**Kariavattom**



DEPARTMENT OF PHYSICS  
SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM

2022-2024

**CERTIFICATE**

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Ms. RESMIS

Assistant Professor and Head

Department of Physics

SNCW, Kollam

Evaluated by

1)

2)



DEPARTMENT OF PHYSICS  
UNIVERSITY OF KERALA  
KARIAVATTOM  
THIRUVANANTHAPURAM-695581



CERTIFICATE

This is to certify that the project report titled "Synthesis And Optical Studies Of Nanostructured ZnO" is submitted by ANU A S (Reg.No:63022129010) in partial fulfilment of the requirements for the award of the Degree of Master of Science in Physics at Sree Narayana College for Women, Kollam is the work carried out by her under my guidance. To the best of my knowledge, the matter embodied in this report has not been submitted to any other University/Institute for the award of any Degree/Diploma.

Chithra S  
Research Scholar  
Dept. of physics  
University of Kerala  
Kariavattom

Dr. V BIJU  
Head of the Department  
Dept. of Physics  
University of Kerala  
Kariavattom

Head  
Department of Physics  
University of Kerala  
Kariavattom - 695 581





**Synthesis, Characterization, and Antimicrobial  
Evaluation of Iron Oxide Nanoparticles in  
Prokaryotic and Eukaryotic Organisms**

Project submitted to University of Kerala in partial fulfilment of the requirement for the award  
of degree of:

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA 2024**

# CERTIFICATE

This is to certify that Ms. **Anju S Ranjan**, Candidate Code: 63022129009, M.Sc. (IV semester) Student, Post Graduate, Department of Physics, Sree Narayana College for Women (SNCW) Kollam, has effectively carried out project work entitled “**SYNTHESIS, CHARACTERIZATION, AND ANTIMICROBIAL EVALUATION OF IRON OXIDE NANOPARTICLES IN PROKARYOTIC AND EUKARYOTIC ORGANISMS**” at SNCW Kollam, University of Kerala under the guidance of **Dr. Smitha S**

Project Guide

  
Head of the Department

Dr. Smitha S  
Assistant Professor  
Department of Physics  
SNCW, Kollam

Ms. Resmi S  
Assistant Professor & HOD  
Department of Physics  
SNCW, Kollam

EXAM INVIGILATOR

1.

2

**A Study on the Synthesis and Optical Properties of  
Graphitic Carbon-coated ZnO Nanostructures**

**PROJECT REPORT**

*Submitted in partial fulfilment of the requirement for the award for the Degree of  
Master of Science in Physics under CBCSS to University of Kerala*



Submitted by

**AVANI J LAL**

**Register No: 63022129012**

Under the Guidance of

**Dr V BIJU**

**Head and Associate Professor,**

**Department of Physics**

**University of Kerala**

**Kariavattom**



## DEPARTMENT OF PHYSICS

### SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM

2022-2024

### CERTIFICATE

This is to certify that this is a bonafide certificate of the project work entitled “**A Study on the Synthesis and Optical Properties of Graphitic Carbon-coated ZnO Nanostructures**” is an authentic record of the project work carried out by AVANI J LAL (Candidate code: 63022129012) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master of Degree in Physics under the University of Kerala at Sree Narayana College for Women, Kollam, under the guidance of Dr. V Biju, Dept: of Physics, University of Kerala, Kariavattom.

Evaluated by

1)

2)

Ms. RESMI.S

Assistant Professor and Head

Department of Physics

SNCW, Kollam



**DEPARTMENT OF PHYSICS**  
**UNIVERSITY OF KERALA**  
**KARIAVATTOM**  
**THIRUVANANTHAPURAM-695581**



**CERTIFICATE**

This is to certify that the project report titled “A Study on the Synthesis and Optical Properties of Graphitic Carbon-coated ZnO Nanostructures” is submitted by AVANI J LAL (Reg.No:63022129012) in partial fulfilment of the requirements for the award of the Degree of Master of Science in Physics at Sree Narayana College for Women, Kollam is the work carried out by her under my guidance. To the best of my knowledge, the matter embodied in this report has not been submitted to any other University/Institute for the award of any Degree/Diploma.

Chithra S  
Research Scholar  
Dept. of Physics  
University of Kerala  
Kariavattom



9/19/2024  
Dr. V BIJU  
Head  
Department of Physics  
University of Kerala  
Kariavattom - 695 581  
Head of the Department  
Dept. of Physics  
University of Kerala  
Kariavattom

**ANTIOXIDANT PROPERTIES OF GREEN  
SYNTHESIZED IRON OXIDE NANOPARTICLES USING  
CNIDOSCOLUS ACONITIFOLIUS LEAF EXTRACT**

Project submitted to the University of Kerala in partial fulfilment for the requirement of  
the award of degree of

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



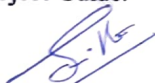
**UNIVERSITY OF KERALA**

**2022-2024**

## CERTIFICATE

This is to certify that Miss **Bismi Saji**, Candidate Code: 63022129013, M.Sc.( IV semester) Student, Post Graduate, Department of Physics, Sree Narayana College for Women (SNCW) Kollam, has effectively carried out project work entitled “**ANTIOXIDANT PROPERTIES OF GREEN SYNTHESISED IRON OXIDE NANOPARTICLES USING CNIDOSCOLUS ACONITIFOLIUS LEAF EXTRACT**” at SNCW Kollam, University of Kerala under the guidance of **Ms.Dr.Smitha.S.**

Project Guide:



Ms. Dr.Smitha.S

Assistant Professor

Department of Physics

SNCW, Kollam

Head of the department



Ms. Resmi.S

Assistant Professor & HOD

Department of Physics

SNCW, Kollam

EXAM INVIGILATOR

1.

2.



# HISTORICAL RAINFALL PATTERNS IN KERALA: AN ANALYSIS OF STATEWIDE TRENDS AND NORTHERN DRISTRICTS

Project submitted to University of Kerala in partial fulfilment of the requirement for the  
award of degree of

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA**

**2022-2024**

**By**

**SOORYA G S**

**Candidate Code:63022129019**



# MSc PHYSICS PROJECT REPORT

NAME : **SOORYA G S**  
CLASS : M.SC. IV SEMESTER  
CANDIDATE CODE : 63022129019  
DISSERTATION NO: PH201

Certified that this a record of the project work of **SOORYA G S** during the final year M.Sc. course in the Department of Physics.



Head of the department

Ms. RESMI S

Assistant Professor & Head

Department of Physics

SNCW, Kollam

Signature of Examiners:

1.

2.

भारत सरकार  
पृथ्वी विज्ञान मंत्रालय  
भारत मौसम विज्ञान विभाग  
मौसम केंद्र  
विकास भवन (डाक)  
तिरुवनंतपुरम



Government of India  
Ministry of Earth Sciences  
India Meteorological Department  
Meteorological Centre  
Vikas bhavan (PO)  
Thiruvananthapuram

No.AWS-0300/(100 AWS)/CERT-92

Dated 09-09-2024

## CERTIFICATE

Certified that the project report entitled "Historical Rainfall patterns in Kerala: An analysis of state wide trends and Northern districts" is a bonafide work of Kumari Soorya G S (Reg. No 63022129019, Department of Physics , S N College for Women, Kollam) carried out under my supervision at the Indian Meteorological Department, Thiruvananthapuram.

A handwritten signature in blue ink, appearing to read 'P.S. Biju'.

(P.S.Biju)  
Scientist-F

Director (AWS & Radar Projects)

(Recipient of National awards 2022,2019,2017,2011)



P.S. BIJU  
Scientist-F  
Director (Govt. of India)  
India Meteorological Department  
Ministry of Earth Sciences

# **PHOTODEGRADATION OF SnO<sub>2</sub>/GCN NANOCOMPOSITE**

*Project submitted to University of kerala in partial fulfillment of the requirement  
for the award of degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE : PH201**

**EXAM CODE : 63020403**



**UNIVERSITY OF KERALA**

**2024**

By

**ANJU J S**

**Candidate code : 63022129008**



SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM

DEPARTMENT OF PHYSICS



CERTIFICATE

This is to certify that this project report entitled '**Photodegradation of SnO<sub>2</sub>/GCN nanocomposite**' is a bonafide record of the work done by Ms. **Anju J S** for the partial fulfillment of the requirement for the award of the Degree of **Master of Science in Physics** under the **University of Kerala**.

Head of the department

Ms. Resmi S

Assistant Professor & Head

Department of Physics

SNCW, Kollam



# DEPARTMENT OF PHYSICS

## BISHOP MOORE COLLEGE

Mavelikara, Kerala, India - 690110

Re-assessed and Re-accredited (UHD-CapE) with 'A' grade by N A A

Approved by the DISTRICT EDUCATION OFFICER, KASARagoddy School

---

### CERTIFICATE

This is to certify that the project work entitled "**PHOTODEGRADATION OF SnO<sub>2</sub>/GCN NANOCOMPOSITE**" is a bonafide record of the original work done by ANJU J S (Reg. No. 63022129008), under my guidance at the Department of Physics, Bishop Moore College Mavelikara, in partial fulfillment of the requirement for the degree of Master of Science in Physics, University of Kerala and no part of this project has been presented before for any other degree.

**Dr. Arun Aravind**

Assistant Professor

Department of Physics

Bishop Moore College

Mavelikara

# **RAINFALL PATTERNS IN FIVE DISTRICTS OF KERALA: A COMPARITIVE STUDY**

*Project submitted to University of Kerala in partial fulfillment of the requirement  
for the award of degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA**

**2024**

By

**LEKSHMI B**

**Candidate code: 63022129018**

**M.Sc. Physics (IV Semester) Project Report**

Name : **Lekshmi B**  
CLASS : M.Sc. IV semester  
Candidate code : 63022129018

Certified that this a record of the project work of **Lekshmi B** during the final year M.Sc. course in the Department of Physics.



Head of the department

Ms. Resmi S

Assistant Professor & Head

Department of Physics

SNCW, Kollam

Signature of Examiners:

1.

2.



**SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM**

**DEPARTMENT OF PHYSICS**



**CERTIFICATE**

This is to certify that this project report entitled '**Rainfall Patterns in Five Districts of Kerala: A Comparative Study**' is a bonafide record of the work done by Ms. **Lekshmi B** for the partial fulfillment of the requirement for the award of the Degree of **Master of Science in Physics** under the **University of Kerala**.



Head of the department

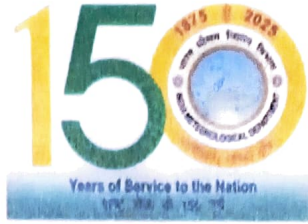
Ms. Resmi S

Assistant Professor & Head

Department of Physics

SNCW, Kollam

भारत सरकार  
प्रथ्वी विज्ञान मंत्रालय  
भारत मौसम विज्ञान विभाग  
मौसम केंद्र  
विकास भवन (डाक)  
तिरुवनंतपुरम



Government of India  
Ministry of Earth Sciences  
India Meteorological Department  
Meteorological Centre  
Vikas bhavan (PO)  
Thiruvananthapuram

No.AWS-0300/ (100 AWS)/CERT-93

Dated 09-09-2024

## CERTIFICATE

Certified that the project report entitled “Rainfall patterns in five districts of Kerala: A comparative study “is a bonafide work of Kumari Lekshmi B (Reg.No 63022129018, Department of Physics, S N College for Women, Kollam) carried out under my supervision at India Meteorological Department, Thiruvananthapuram.

(P.S. Biju)

**Scientist-F**

**Director (AWS & Radar Projects)**

(Recipient of National awards 2022,2019,2017,2011)

**P.S. BIJU**  
**Scientist-F**  
**Director (Govt. of India)**  
**India Meteorological Department**  
**Ministry of Earth Sciences**



# **Investigation of Electrochemical Performance of Yttrium-Substituted $\text{MnFe}_2\text{O}_4$**

*Dissertation submitted to the University of Kerala in partial fulfilment of the  
requirement for the award of degree of*

**Master of Science in Physics**

by

**ARKA T S**

**Reg. No : 63022129011**



**Department of physics  
Sree Narayana College for Women, Kollam**

Under the supervision of

**Dr. Lija K Joy**

**Assistant Professor**

**Bishop Moore College, Mavelikara**

**UNIVERSITY OF KERALA**

**2022-2024**

**SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM**

**DEPARTMENT OF PHYSICS**



**CERTIFICATE**

This is to certify that the dissertation entitled “**Investigation of Electrochemical Performance of Yttrium-Substituted  $MnFe_2O_4$** ” is an original and independent work done by **Arka T S (Reg. No : 63022129011)** under the guidance of Dr. Lija K Joy, Assistant professor, Department of Physics, Bishop Moore College, Mavelikara for the partial fulfilment of the requirement for the degree of Master of Science in Physics, University of Kerala.

Evaluated by

1)

2)

Ms. RESMI S

Assistant Professor and Head of the

Department of Physics

SNCW, Kollam

**A STUDY ON THE SIZE DEPENDENT ANTIFUNGAL  
ACTIVITY OF VANADIUM DOPED NICKEL OXIDE  
NANOPARTICLES**

**PROJECT REPORT**

*A Project submitted to university of Kerala in partial fulfillment of the requirement  
for the award of degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA  
2022-2024**

Submitted by

**DEVI ARCHANA**

**Register No: 63022129014**

Under the Guidance of

**Sona G Krishnan**

**Assistant Professor**

**Physics Department of Physics**

**SNCW, Kollam**

## CERTIFICATE

This is to certify that this is a bonafide certificate of the project work entitled “ **A Study on the Size Dependent Antifungal Activity of Vanadium doped Nickel oxide Nanoparticles**” is an authentic record of the project work carried out by **DEVI ARCHANA** (Candidate code: 63022129014) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master of Degree in Physics under the University of Kerala at Sree Narayana College for Women, Kollam.



Ms. Reshmi S

Assistant professor and Head  
Department of Physics  
SNCW, Kollam

Project Guide:



Sona G Krishnan

Assistant Professor

Department of Physics

SNCW, Kollam .



Evaluated by

1)

2)

**IMPACT OF YTTRIUM DOPING ON  
STRUCTURAL AND OPTICAL PROPERTIES OF  
ZnO NANOSTRUCTURES**

*Project report submitted to university of Kerala in partial fulfillment of the  
requirement for the award of degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA 2022-24**

Submitted by

**ANJALI R**

**Register No: 63022129006**

Under the Guidance of

**Mrs.Resmi. S**

**Head and Assistant Professor,**

**Department of physics**

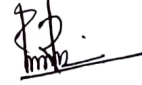
**SNCW, Kollam**

## CERTIFICATE

This is to certify that the this is a bonafide certificate of the project work entitled “Impact of Yttrium doping on structural and optical properties of ZnO nanostructures” is an authentic record of the project work carried out by ANJALI R (Candidate code: 63022129006) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master of Science in Physics under the University of Kerala at Sree Narayana College for Women, Kollam.

Evaluated by

- 1)
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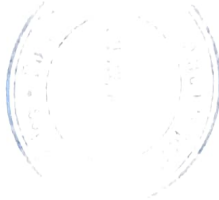


Mrs. RESMI S

Assistant Professor and Head

Department of Physics

SNCW, Kollam





**Comparative Study on Average Rainfall over  
Five districts in Kerala**

*Project submitted to University of India in partial fulfilment of the requirement for the award of  
degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE : PH201**

**EXAM CODE : 63020403**



**UNIVERSITY OF KERALA**

**2024**

**COMPARATIVE STUDY ON AVERAGE RAINFALL OVER FIVE  
DISTRICTS IN KERALA**

*Dissertation submitted to the University of Kerala in partial fulfilment of the requirements for the  
award of the degree of master of physics.*

**BY**

**AARSHA S S**

**Candidate code: 63022129001**

**Exam code: 63020403**

**Subject code: PH201**



**DEPARTMENT OF PHYSICS**

**SREE NARAYANA COLLEGE FOR WOMEN**

**KOLLAM**

**2022-2024**

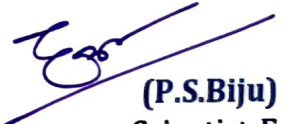


No.AWS-0300/(100 AWS)/CERT-94

Dated 09-09-2024

## CERTIFICATE

Certified that the project report entitled "Comparative study on average Rainfall over five districts in Kerala" is a bonafide work of Mrs. Aarsha S S (Reg.No 63022129001, Department of Physics, S N College for Women, Kollam) carried out under my supervision at India Meteorological Department, Thiruvananthapuram.

  
(P.S.Biju)  
Scientist-F

Director (AWS & Radar Projects)  
(Recipient of National awards 2022,2019,2017,2011)



P.S. BIJU  
Scientist-F  
Director (Govt. of India)  
India Meteorological Department  
Ministry of Earth Sciences

**SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM**

**DEPARTMENT OF PHYSICS**



**CERTIFICATE**

This is to certify that this project report entitled 'comparative study on average rainfall over five districts in kerala' is a bonafide record of the work done by Ms. **Aarsha S S** for the partial fulfillment of the requirement for the award of the Degree of **Master of Science in Physics** under the **University of Kerala**.



Head of the department

Ms. Resmi S

Assistant Professor & Head

Department of Physics

SNCW, Kollam



# STRUCTURAL AND OPTICAL CHARACTERIZATION OF $\text{Cr}_2\text{O}_3$ AND COPPER SUBSTITUTED $\text{Cr}_2\text{O}_3$

## PROJECT REPORT

Submitted in partial fulfilment of the requirement for the award for the Degree of  
Master of Science in Physics under CBCSS to University of Kerala



Submitted by

**ANJANA.A.M**

**Register No: 63022129007**

Under the Guidance of

**Dr I. Hubert Joe**

**Head and Associate Professor,**

**Department of Nanoscience and Nanotechnology**

**University of Kerala**

**Kariavattom**



**DEPARTMENT OF PHYSICS**  
**SREE NARAYANA COLLEGE FOR WOMEN**  
**KOLLAM**  
**2022-2024**

**CERTIFICATE**

This is to certify that this is a bonafide certificate of the project work entitled “**Structural and optical characterization of  $\text{Cr}_2\text{O}_3$  and copper substituted  $\text{Cr}_2\text{O}_3$** ”, is an authentic record of the project work carried out by ANJANA.A.M (Candidate code:63022129007) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master Degree in Physics under the University of Kerala at Sree Narayana College for Women ,Kollam.

Evaluated by

1)

2)

Ms. Resmi.S

Assistant Professor and Head

Of Department of Physics

SNCW, Kollam



**COMPARISON OF STRUCTURAL AND  
OPTICAL PROPERTIES OF MgO SYNTHESISED  
VIA CO-PRECIPITATION AND SOLUTION  
COMBUSTION METHODS AND THEIR  
ANTIBACTERIAL EFFICIENCIES.**

Dissertation submitted to the university of Kerala in partial  
fulfilment of the requirements for the award of the degree of

**MASTER OF SCIENCE IN PHYSICS**

**BY**

**ABHINA ASHISH**

Candidate code :63022129002

Exam code :63020403

Subject code :PH201



DEPARTMENT OF PHYSICS

SREE NARAYANA COLLEGE FOR WOMEN

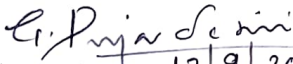
KOLLAM

2022-2024

## CERTIFICATE

This is to certify that Miss **ABHINA.ASHISH**, Candidate Code: 63022129002, M.Sc (IVth semester) Student, Post Graduate, Department of Physics, Sree Narayana College for Women (SNCW) Kollam, has effectively carried out project work entitled “**COMPARISON OF STRUCTURAL AND OPTICAL PROPERTIES OF MgO SYNTHESISED VIA CO-PRECIPIATION AND SOLUTION COMBUSTION METHODS AND THEIR ANTIBACTERIAL EFFICIENCIES**” at SNCW Kollam, University of Kerala under the guidance of Ms. **PRIYADARSINI.G.**

Project Guide:


  
Ms. Priyadarsini. G 12/9/2024 .

Assistant Professor

Department of Physics

SNCW, Kollam

Head of the department

  
Ms. Resmi. S

Assistant Professor & Head

Department of Physics

SNCW, Kollam

EXAM INVIGILATOR

1.

2.





**UNRAVELING THE CHARACTERISTICS OF  
GADOLINUM-DOPED CERIA OXIDE USING XRD, UV  
SPECTROSCOPY AND RAMAN SPECTROSCOPY :  
A CITATION BASED INVESTIGATION IN THE CONTEXT OF  
SOFC ELECTROLYTES**

**PROJECT REPORT**

*Submitted in partial fulfilment of the requirement for the award for the Degree of  
Master of Science in Physics under CBCSS to University of Kerala*



Submitted by

**SREEPARVATHY G**

**Register No: 63021129019**

Under the Guidance of

**Dr Sibi K.S**

**Assistant Professor**

**Department of Physics**

**University of Kerala**

**Kariavattom**



**DEPARTMENT OF PHYSICS**  
**SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM**  
**2021-2023**

**CERTIFICATE**

This is to certify that the this is a bonafide certificate of the project work entitled “**Unraveling the Characteristics of Gadolinium-doped ceria oxide using XRD, UV Spectroscopy and Raman Spectroscopy: A Citation Based Investigation in the Context Of SOFC Electrolytes**” is an authentic record of the project work carried out by SREEPARVATHY G (Candidate code: 63021129019) during the year 2021-2023 in partial fulfilment of requirements for the completion of the course of Master of Degree in Physics under the University of Kerala at Sree Narayana College for Women, Kollam.

Evaluated by

1)

2)



Ms. RESMI.S

Assistant Professor and Head

Department of Physics

SNCW, Kollam

# **A Study on Atmospheric Aerosol Chemical Composition using Mass-spectrometry Technique**

*Project submitted to University of Kerala in partial fulfillment of the requirement  
for the award of degree of*

**Master of Science in Physics**

**Subject Code: PH201**

**Exam Code: 63020401**



**University of Kerala**

**2024**

**By**

**K R RESHMIRAJ**

**Candidate code: 63022129017**

**Department of Physics**

**Sree Narayana College for Women, Kollam**

**2022-2024**

**SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM**

**DEPARTMENT OF PHYSICS**



**CERTIFICATE**

This is to certify that this project report entitled '**A Study on Atmospheric Aerosol Chemical Composition using Mass-spectrometry Technique**' is a bonafide record of the work done by **Ms. K R Reshmiraj** for the partial fulfillment of the requirement for the award of the Degree of **Master of Science in Physics** under the **University of Kerala**.

Head of the department

*Priyadarsini*  
6/6/2024

Ms. Priyadarsini.G

Assistant Professor & Head

Department of Physics

SNCW, Kollam



भारत सरकार  
अंतरिक्ष विभाग  
विक्रम साराभाई अंतरिक्ष केन्द्र  
तिरुवनन्तपुरम-695 022  
केरल, भारत

फोन : (0471) 256 3326  
फैक्स : (0471) 270 6535

तार/Gram: SPACE



Government of India  
Department of Space  
Vikram Sarabhai Space Centre  
Thiruvananthapuram-695 022  
Kerala, INDIA

Telephone : (0471) 256 3326  
Fax : (0471) 270 6535

ई-मेल/e-mail: kk\_sobhan@vssc.gov.in

## Space Physics Laboratory

### Certificate

This is to certify that this project report entitled "A Study on Atmospheric Aerosol Chemical Composition using Mass-spectrometry Technique" submitted by Ms. K R Reshmiraj for the partial fulfillment of the requirement for the award of the Degree of Master of Science in Physics has been successfully carried out at the Space Physics Laboratory, Vikram Sarabhai Space Centre, Thiruvananthapuram.

My hearty best wishes for her success in life.

*K. Sobhan Kumar*  
- 29/4/24

Dr. Sobhan Kumar Kompalli  
Scientist-SF,  
SPL, VSSC  
Thiruvananthapuram

डॉ. सोभन कुमार कॉम्पल्ली/Dr. Sobhan Kumar Kompalli  
वैज्ञानिक/इंजीनियर एसएफ/Scientist/Engineer SF  
अन्तरिक्ष भौतिकी प्रयोगशाला/Space Physics Laboratory  
विक्रम साराभाई अंतरिक्ष केन्द्र/Vikram Sarabhai Space Centre  
भारतीय अन्तरिक्ष अनुसंधान संगठन/Indian Space Research Organisation  
अन्तरिक्ष विभाग, भारत सरकार/Dept. of Space, Govt. of India  
तिरुवनन्तपुरम, भारत/Thiruvananthapuram, India, 695022

भारतीय अंतरिक्ष अनुसंधान संगठन



Indian Space Research Organisation

# **Synthesis and Characterisation of Cerium Doped Lanthanum Stabilized Zirconate**

Project Report submitted to

**University of Kerala**

in partial fulfillment for the award of the degree of

**Master of Science**

**in Physics**

by

**Abhirami M**

(Reg No: 63022129003

Exam Code: 63020403

Subject Code: PH 201)

Under the supervision of

**Dr. Sibi. K. S**

Department of Physics

University of Kerala



Department of Physics

Sree Narayana College for Women, Kollam

2022– 2024



## DEPARTMENT OF PHYSICS

### SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM

#### CERTIFICATE

This is to certify that work embodied in the project report entitled "~~Synthesis~~ and **Characterization of Cerium Doped Lanthanum Stabilized Zirconate**" has been carried out by Ms. Abhirami M (Candidate code: 63022129015) during the year 2022-2024 under the guidance of Dr. Sibi K.S, Assistant professor, Department of Physics, University of Kerala in partial fulfilment of requirements for the completion of the course of Master of Degree in Physics under the University of Kerala at Sree Narayana College for Women, Kollam.

Evaluated by

1)

2)

  
Ms. RESMI.S

Assistant Professor and Head

Department of Physics

SNCW, Kollam



# UNIVERSITY OF KERALA

(Established as University of Travancore by the Travancore University Act in 1937 and reconstituted as University of Kerala by the Kerala University Act of 1957 and presently governed by the Kerala University Act 1974 passed by Kerala State Legislative Assembly)

(NAAC Reaccredited with 'A++' Grade)



## DEPARTMENT OF PHYSICS

KARYAVATTOM  
THIRUVANANTHAPURAM-695581  
KERALA, INDIA  
e-mail: [kuphysics76@gmail.com](mailto:kuphysics76@gmail.com)  
Phone 0471 - 2308920

Date: 05-09-2024

## CERTIFICATE

This is to certify that work embodied in the project report entitled, “**Synthesis and Characterization of Cerium Doped Lanthanum Stabilized Zirconate**” has been carried out by **Ms. Abhirami M.** under my supervision and guidance at Department of Physics, University of Kerala.

Kariavattom



Dr. SIBI K. S.  
Assistant Professor  
Department of Physics  
University of Kerala  
Thiruvananthapuram, Kerala-695581

Dr. Sibi K S



**A COMPARATIVE STUDY ON THE  
STRUCTURAL AND OPTICAL PROPERTIES  
OF NANOCERIA SYNTHESIZED BY  
COMBUSTION AND CO-PRECIPIATION  
METHODS**

*Project report submitted to university of Kerala in partial fulfillment of the  
requirement for the award of degree of*

**MASTER OF SCIENCE IN PHYSICS**

**SUBJECT CODE: PH201**

**EXAM CODE: 63020403**



**UNIVERSITY OF KERALA 2022-24**

Submitted by

**ANILA S**

**Register No: 63022129005**

Under the Guidance of,

**Dr. Prabha Jyothi P.S.**


**Assistant Professor,**

**Department of physics**

**SNCW, Kollam.**

## CERTIFICATE

This is to certify that this is a bonafide certificate of the project work entitled "**A comparative study on the structural and optical properties of nanoceria synthesized by combustion and co-precipitation methods**" is an authentic record of the project work carried out by ANILA S (Candidate code: 63022129005) during the year 2022-2024 in partial fulfilment of requirements for the completion of the course of Master of Science in Physics under the University of Kerala at Sree Narayana College for Women, Kollam.



Ms. Resmi. S

Assistant Professor & Head of  
Department of Physics  
SNCW, Kollam



Project Guide:

Dr. Prabha Jyothi P.S.  
Assistant Professor  
Department of Physics  
SNCW, Kollam



1)

2)

# **SUPERCAPACITOR APPLICATIONS OF PURE AND CERIUM DOPED IRON OXIDE NANOPARTICLES**

*Dissertation Submitted to the University of Kerala for the Partial Fulfilment of  
Requirement for the Award of the Degree of*

**MASTER OF SCIENCE**

**In PHYSICS**



Submitted by

**Akhila V**

**Register No: 63022129004**

Under the guidance of

**Dr.D.SAJAN**

**Head & Professor**

**Department of Physics**

**Bishop Moore College, Mavelikara**

*Project report 2024*

SEIYUN UNIVERSITY COLLEGE OF SCIENCE

COLLEGE

DEPARTMENT OF PHYSICS



DISSERTATION

This is a copy of the thesis submitted by **SUPERCAPACITOR APPLICATIONS OF  
PURE AND CARBON DOPED BION-FIBRE NANOPARTICLES** submitted to the  
Department of Physics, Seiyun University, in partial fulfillment of the requirements for the award of the  
Degree of Master of Science in Physics under the University of Seiyun.

From the Department

of

Assistant Professor & Head

Department of Physics

SOU, Kollam

**GREEN SYNTHESIS AND CHARACTERIZATION OF  
CHITOSAN-SILVER/POLYETHYLENE GLYCOL  
BIODEGRADABLE FILM FROM LEAF EXTRACT OF  
SIMAROUBA GLAUCA**

DISSERTATION SUBMITTED TO THE UNIVERSITY OF KERALA IN PARTIAL  
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF

**MASTER OF SCIENCE IN CHEMISTRY**

BY

**PRIYANKA J**

**CANDIDATE CODE : 63522129014**

**COURSE CODE : 635**

Under the guidance of

**Dr. Asha Bhanu A V**

**Assistant Professor**



**DEPARTMENT OF CHEMISTRY**

**SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM-691001**

**August, 2024**

## **CERTIFICATE**

This is to certify that the dissertation titled “**Green synthesis and characterization of Chitosan-Silver/Polyethylene glycol biodegradable film from leaf extract of Simarouba glauca** ” is a record of studies carried out by Priyanka J, at the Department of Chemistry, Sree Narayana College for Women, Kollam, under the guidance and submitted to the University of Kerala in partial fulfilment of the Degree of Master of Science in Chemistry.

**Dr. Suma S**  
**Head, Department of Chemistry**  
**Sree Narayana College for Women**  
**Kollam**

**Dr. Asha Bhanu A V**  
**Assistant Professor**  
**Sree Narayana College for Women**  
**Kollam**

# PHOTOCATALYTIC DEGRADATION OF DYES UNDER SOLAR LIGHT IRRADIATION USING GREEN-SYNTHEZIZED ZnO NANOPARTICLES

*A project report submitted to the University of Kerala in partial fulfillment of the  
requirement for the award of the degree of*

**MASTER OF SCIENCE IN CHEMISTRY**

By

**MEENU KRISHNA B**

**Candidate Code : 63522129010**

**Exam Code : 63520403**

**Course Code : CH 243(a)**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM, KERALA-691001**

**2022-24**



DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM-691001

[sncollegeforwomen@gmail.com](mailto:sncollegeforwomen@gmail.com)

---

**CERTIFICATE**

This is to certify that the dissertation entitled "*Photocatalytic degradation of dyes under solar light irradiation using green-synthesised ZnO nanoparticles*" is an authentic record of the research work carried out by Ms. **MEENU KRISHNA B**, at the Department of Chemistry, Sree Narayana College for Women, Kollam under the guidance of Dr. Renjini S and Ms Pavitha P.A , Assistant Professors, Department of Chemistry Sree Narayana College for Women, Kollam, for the partial fulfillment of the requirement for the degree of Master of Science in Chemistry, Kerala University (S N College for Women).

Kollam

August 2024

**Dr. SUMA S**

Head of the Department  
Department of Chemistry  
S N College for Women,  
Kollam





**EVALUATION OF HYDRO CHEMICAL PARAMETERS &  
HYDROCHEMICAL ASSESSMENT OF WATER QUALITY  
INDEX IN WAYANAD DISTRICT, KERALA, INDIA**

*A project report submitted to University of Kerala in partial fulfilment of the requirement for  
the award of the degree of*

**Master of Science in Chemistry**

**By**

**NADIYA FATHIMA T**

**Register Number: 63522129011**



**Department of Chemistry**

**Sree Narayana College for Women, Kollam, Kerala-691001**

**Under the guidance of**

**Dr. K. ANOOP KRISHNAN**

**Scientist E., Biogeochemistry Group (BgG) ESSO- NATIONAL  
CENTRE FOR EARTH SCIENCE (NCESS)AKKULAM,  
THIRUVANATHAPURAM**





राष्ट्रीय पृथ्वी विज्ञान अध्ययन केन्द्र  
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES  
पृथ्वी विज्ञान मंत्रालय, भारत सरकार  
*Ministry of Earth Sciences, Government of India*  
पी.बी.नं. 7250, आक्कुलम, तिरुवनन्तपुरम - 695011, भारत  
PB No. 7250, Akkulam, Thiruvananthapuram-695011, India



06.09.2024

**Dr. K. Anoop Krishnan**  
Scientist & Supervising Guide  
Biogeochemistry Group

## CERTIFICATE

This is to certify that **Ms. NADIYA FATHIMA T** (Reg. No: 63522129011), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled **“EVALUATION OF HYDROCHEMICAL PARAMETERS & HYDROCHEMICAL ASSESSMENT OF WATER QUALITY INDEX IN WAYANAD DISTRICT, KERALA, INDIA”** in partial fulfilment for the award of **Master’s Degree in Chemistry** (2022-2024), SREE NARAYANA COLLEGE FOR WOMEN, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

**Dr. K. Anoop Krishnan**  
(Supervising Guide)

**CHITOSAN DOPED HYBRID/TiO<sub>2</sub>  
NANOCOMPOSITE BASED EPOXY COATINGS FOR CORROSION  
PROTECTION**

*A project report submitted to the University of Kerala in partial fulfillment  
of therequirement for the award of the degree of*

**MASTER OF SCIENCE IN CHEMISTRY BY BIJUSHA B K**

**Candidate Code: 63522129008**

**Exam Code : 63520403**

**Course Code : CH 243(a)**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN KOLLAM,  
KERALA-691001**

**2022-24**



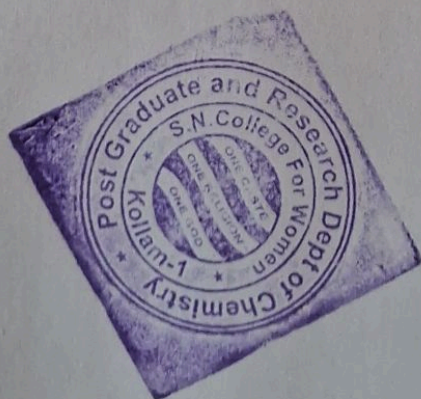
DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM-691001  
[sncollegeforwomen@gmail.com](mailto:sncollegeforwomen@gmail.com)

---

**CERTIFICATE**

This is to certify that dissertation entitled “ *chitosan doped hybrid /TiO<sub>2</sub> Nanocomposite Based Epoxy Coatings for corrosion protection*”, is an authentic record of the research work carried out by Ms. BIJUSHA B K The Department of chemistry, Sree Narayana college for Women, Kollam under the guidance of **Dr. Vijayalekshmi V**, Assistant Professor department of chemistry Sree Nayarayana College for Women, kollam for the partial fulfilment of the requirement for the degree of Master of science in chemistry Kerala university ( SN college for Women Kollam ).

Kollam  
August 2024



**Dr. SUMA S**  
Head of the Department  
Department of Chemistry  
S N College for Women,  
Kollam

***In silico* analysis of Doxorubicin analogues: PS80 conjugation targeting  
sustained delivery to the brain for the treatment of Brain tumor**

*A project report submitted to University of Kerala in partial fulfilment of the requirement for  
the award of the degree of*

**Master of Science in Chemistry**

**By**

**LEKSHMI D KARUNAN S**

**Register Number: 63522129009**



**Department of Chemistry**

**Sree Narayana College for Women, Kollam, Kerala-691001**

**Under the guidance of**

**Dr. Sandhya K.S.**



**Department of Chemistry**

**University of Kerala, Karyavattom, Thiruvananthapuram, Kerala-695581**

**June 2024**



**DEPARTMENT OF CHEMISTRY  
UNIVERSITY OF KERALA  
Kariavattom Thiruvananthapuram- 695581**


Email: [chem12uniker@gmail.com](mailto:chem12uniker@gmail.com), Phone: 04712308682

(Established as University of Travancore by the Travancore University Act in 1937 and reconstituted as University of Kerala by the Kerala University Act of 1957 and presently governed by the Kerala University Act 1974 passed by the Kerala State Legislative Assembly)  
(Re-accredited by NAAC with 'A++' Grade)

05-08-2024

**CERTIFICATE**

Certified that this report entitled "*In silico analysis of Doxorubicin analogues: PS80 conjugation targeting sustained delivery to the brain for the treatment of brain tumor*" is a bonafide record of the project work done by Ms. Lekshmi D Karunan S, Reg No. 63522129009 during the period from 1<sup>st</sup> April 2024 to 3<sup>th</sup> June 2024 under my guidance at the Department of Chemistry, University of Kerala, towards the partial fulfilment of the requirements for the award of the degree M.Sc Chemistry, Department of Chemistry, Sree Narayana College for Women, Kollam.

  
Dr. Sandhya K. S.

Asst. Professor (Tenure track)

Department of Chemistry

University of Kerala



**BIOGENIC SYNTHESIS OF MANGANESE AND  
IRON NANOPARTICLES USING BETA VULGARIS  
EXTRACTS FOR ELECTROCHEMICAL  
APPLICATIONS**

*A project report submitted to the University of Kerala in partial fulfillment of the  
requirement for the award of the degree of*

**MASTER OF SCIENCE IN CHEMISTRY**

By

**AKSHAYA ASHOK**

**Candidate Code : 63522129002**

**Exam Code            63520403**

**Course Code        : CH 243(a)**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM, KERALA-691001**

**2022-24**



DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN  
KOLLAM-691001

[sncollegeforwomen@gmail.com](mailto:sncollegeforwomen@gmail.com)

---

### CERTIFICATE

This is to certify that the dissertation entitled " **Biogenic Synthesis Of Manganese and Iron Nanoparticles Using Beta Vulgaris Extracts For Electrochemical Applications** " is an authentic record of the research work carried out by Ms. **AKSHAYA ASHOK**, at the Department of Chemistry, Sree Narayana College for Women, Kollam under the guidance of Dr. Renjini S and Ms Pavitha P.A , Assistant Professors, Department of Chemistry Sree Narayana College for Women, Kollam, for the partial fulfillment of the requirement for the degree of Master of Science in Chemistry, Kerala University (S N College for Women).

Kollam

August 2024

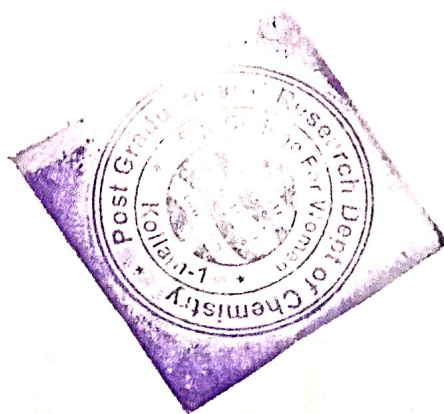
**Dr. SUMAS**

Head of the Department

Department of Chemistry

S N College for Women,

Kollam





**“Broad emitting divalent Europium-activated  
Sr<sub>0.9</sub>Ba<sub>0.9</sub>SiO<sub>4</sub> phosphor for LED lighting and display  
applications”**

A Project report submitted in partial fulfillment of the requirements for the  
degree of

**MASTER OF SCIENCE IN CHEMISTRY**

Submitted By

**ANU M. MARIYAM**

Candidate code: **63522129004**

Exam code: **63520104**

Subject code: **CH 243**

Under the guidance of

**Dr. Subrata Das**

**Principal Scientist**



**Materials Science and Technology Division**

**CSIR- National Institute for Interdisciplinary Science and Technology**

**Thiruvananthapuram, 695019**

**UNIVERSITY OF KERALA**



**JULY, 2022-24**

# National Institute for Interdisciplinary Science and Technology (NIIST)



Council of Scientific & Industrial Research (CSIR)  
Ministry of Science and Technology, Government of India  
Industrial Estate P. O., Trivandrum - 695 019  
Kerala, INDIA



**Dr. Subrata Das**  
Principal Scientist,  
Materials Science and Technology Division

**Tel:** 91-471-2515360 (O), 7407825435 (M)  
**Email:** subratadas@niist.res.in  
physubrata@gmail.com

## CERTIFICATE

This is to certify that the work embodied in the project report entitled “Broad emitting divalent Europium-activated  $\text{Sr}_{0.9}\text{Ba}_{0.9}\text{SiO}_4$  phosphor for LED lighting and display applications” has been carried out by **Ms. Anu M. Mariyam** under my supervision at the Material Sciences and Technology Division of CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum during the period April 2024-June 2024 in partial fulfillment of the Degree of Master of Science in Chemistry. The present work or any part thereof has not been submitted elsewhere for the award of any other degree.

Thiruvananthapuram

June 2024

Dr. Subrata Das

(Project Supervisor)

**DEVELOPMENT OF TITANIUM DIOXIDE  
NANOSTRUCTURE-BASED NON-ENZYMATIC  
ELECTROCHEMICAL SENSOR FOR GLUCOSE  
DETECTION**

DISSERTATION SUBMITTED TO THE UNIVERSITY OF KERALA IN PARTIAL  
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF

**MASTER OF SCIENCE IN CHEMISTRY**

BY

**SABARI UMESH**

**CANDIDATE CODE: 63522129016**

**COURSE CODE: 635**

**Under the supervision of**

**Dr. POORNIMA VIJAYAN P**

**Assistant Professor**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN, KOLLAM-691001**

**August, 2024**

## **CERTIFICATE**

**This is to certify that the dissertation titled "Development of Titanium Dioxide nanostructure based non-enzymatic electrochemical sensor for glucose detection" is a record of studies carried out by Sabari Umesh, at the Department of Chemistry, Sree Narayana College for Women, Kollam, under the guidance and submitted to the University of Kerala in partial fulfillment of the Degree of Master of Science in Chemistry.**

**Dr. Suma S**  
**Head, Department of Chemistry**  
**Sree Narayana College for Women**  
**Kollam**

**Dr. Poornima Vijayan P**  
**Assistant Professor**  
**Sree Narayana College for Women**  
**Kollam**

**HYDRO CHEMICAL ANALYSIS AND EVALUATION OF  
WATER QUALITY FOR IRRIGATION PURPOSES IN  
TALIPARAMBA, KANNUR DISTRICT, KERALA, INDIA**

*A project report submitted to University of Kerala in partial fulfilment of the requirement for  
the award of the degree of*

**Master of Science in Chemistry**

**By**

**NIRANJANA UNNI V V**

**Register Number: 63522129012**



**Department of Chemistry**

**Sree Narayana College for Women, Kollam, Kerala-691001**

**Under the guidance of**

**Dr. K. ANOOP KRISHNAN**

**Scientist E., Biogeochemistry Group (BgG) ESSO- NATIONAL  
CENTRE FOR EARTH SCIENCE (NCESS)AKKULAM,  
THIRUVANATHIAPURAM**





राष्ट्रीय पृथ्वी विज्ञान अध्ययन केन्द्र  
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES  
पृथ्वी विज्ञान मंत्रालय, भारत सरकार  
*Ministry of Earth Sciences, Government of India*  
पी.डी.नं. 7250, आकुलम, तिरुवनन्तपुरम - 695011, भारत  
PB No. 7250, Akkulam, Thiruvananthapuram-695011, India



06.09.2024

**Dr. K. Anoop Krishnan**  
Scientist & Supervising Guide  
Biogeochemistry Group

## CERTIFICATE

This is to certify that Ms. NIRANJANA UNNI V.V. (Reg. No: 63522129012), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled **"HYDROCHEMICAL ANALYSIS AND EVALUATION OF WATER QUALITY FOR IRRIGATION PURPOSES IN TALIPARAMBA, KANNUR DISTRICT, KERALA, INDIA"** in partial fulfilment for the award of **Master's Degree in Chemistry (2022-2024)**, SREE NARAYANA COLLEGE FOR WOMEN, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, National Centre for Earth Science Studies, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

**Dr. K. Anoop Krishnan**  
(Supervising Guide)

**GREEN SYNTHESIS OF SILVER NANOPARTICLES AND  
CHARACTERISATIONS USING BACCAUREA COURTALLENSIS LEAF  
EXTRACT AND EVALUATION OF IT'S ANTIBACTERIAL ACTIVITY**

*A project report submitted to the University of Kerala in partial fulfillment of the  
requirement for the award of the degree of*

**MASTER OF SCIENCE IN CHEMISTRY BY  
ARYA S MURALEEDHARAN**

**Candidate Code: 63522129006**

**Exam Code: 63520403**

**Course Code: CH 243(a)**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN KOLLAM,  
KERALA-691001  
2022-2024**



**DEPARTMENT OF CHEMISTRY  
SREE NARAYANA COLLEGE FOR WOMEN**

**KOLLAM-691001**

[sncollegeforwomen@gmail.com](mailto:sncollegeforwomen@gmail.com)

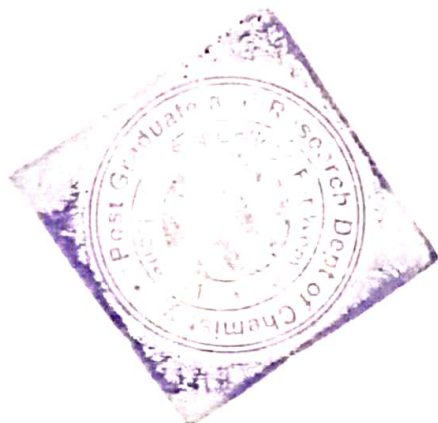
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**CERTIFICATE**

This is to certify that the dissertation entitled "*Green synthesis of silver nanoparticles and characterisations using Baccaurea courtallensis leaf extract and evaluation of its antibacterial activity*" is an authentic record of the research work carried out by Ms. **ARYA S MURALEEDHARAN**, at the Department of Chemistry, Sree Narayana College for Women, Kollam under the guidance of **Ms.Asha C. L.**, Assistant Professor, Department of Chemistry Sree Narayana

College for Women, Kollam, for the partial fulfillment of the requirement for the degree of Master of Science in Chemistry, Kerala University (S N College for Women).

Kollam  
August 2024



**Dr. SUMA S**  
Head of the Department  
Department of Chemistry  
S N College for Women,  
Kollam



**HYDRO CHEMICAL ASSESSMENT OF GROUNDWATER  
AND SURFACE WATER QUALITY & EVALUATION OF  
HYDRO CHEMICAL PARAMETERS IN NEYYATTINKARA  
AREA, KERALA, INDIA**

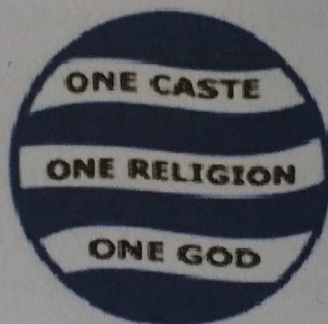
*A project report submitted to University of Kerala in partial fulfilment of the requirement for  
the award of the degree of*

**Master of Science in Chemistry**

**By**

**NISHA S F**

**Register Number: 63522129013**



**Department of Chemistry**

**Sree Narayana College for Women, Kollam, Kerala-691001**

**Under the guidance of**

**Dr. K. ANOOP KRISHNAN**

**Scientist E., Biogeochemistry Group (BgG) ESSO- NATIONAL  
CENTRE FOR EARTH SCIENCE (NCESS)AKKULAM,  
THIRUVANATHAPURAM**





राष्ट्रीय पृथ्वी विज्ञान अध्ययन केन्द्र  
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES  
पृथ्वी विज्ञान मंत्रालय, भारत सरकार  
Ministry of Earth Sciences, Government of India  
पी.बी.नं. 7250, आक्कुलम, तिरुवनन्तपुरम - 695011, भारत  
PB No. 7250, Akkulam, Thiruvananthapuram-695011, India



06.09.2024

**Dr. K. Anoop Krishnan**  
Scientist & Supervising Guide  
Biogeochemistry Group

## CERTIFICATE

This is to certify that **Ms. NISHA S.F.** (Reg. No: 63522129013), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled “**HYDROCHEMICAL ASSESSMENT OF GROUNDWATER AND SURFACE WATER QUALITY & EVALUATION OF HYDROCHEMICAL PARAMETERS IN NEYYATTINKARA AREA, KERALA, INDIA**” in partial fulfilment for the award of **Master’s Degree in Chemistry (2022-2024)**, SREE NARAYANA COLLEGE FOR WOMEN, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

**Dr. K. Anoop Krishnan**  
(Supervising Guide)

**ANALYSIS OF WATER QUALITY INDEX USING  
HYDROCHEMICAL PARAMETERS AND EVALUATION OF  
WATER QUALITY OF DHARMADAM AREA, LOCATED IN  
THALASSERY TALUK, KANNUR, KERALA, INDIA**

*A project report submitted to University of Kerala in partial fulfilment of the requirement for  
the award of the degree of*

**Master of Science in Chemistry**

**By**

**AAVANI RAJ**

**Register Number: 63522129001**



**Department of Chemistry**

**Sree Narayana College for Women, Kollam, Kerala-691001**

**Under the guidance of**

**Dr. K. ANOOP KRISHNAN**

**Scientist E., Biogeochemistry Group (BgG) ESSO- NATIONAL  
CENTRE FOR EARTH SCIENCE (NCESS)AKKULAM,  
THIRUVANATHAPURAM**





राष्ट्रीय पृथ्वी विज्ञान अध्ययन केन्द्र  
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES  
पृथ्वी विज्ञान मंत्रालय, भारत सरकार  
Ministry of Earth Sciences, Government of India  
पी.बी.नं. 7250, आक्कुलम, तिरुवनन्तपुरम - 695011, भारत  
PB No. 7250, Akkulam, Thiruvananthapuram-695011, India



06.09.2024

**Dr. K. Anoop Krishnan**  
Scientist & Supervising Guide  
Biogeochemistry Group

## CERTIFICATE

This is to certify that **Ms. AAVANI RAJ** (Reg. No: 63522129001), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled “**ANALYSIS OF WATER QUALITY INDEX USING HYDROCHEMICAL PARAMETERS AND EVALUATION OF WATER QUALITY OF DHARMADAM AREA, LOCATED IN THALASSERY TALUK, KANNUR, KERALA, INDIA**” in partial fulfilment for the award of **Master’s Degree in Chemistry** (2022-2024), SREE NARAYANA COLLEGE FOR WOMEN, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

**Dr. K. Anoop Krishnan**  
(Supervising Guide)

# MENSTRUAL HYGIENE AND WASTE DISPOSAL PRACTICES / CHALLENGES OF COLLEGE GIRLS

*Thesis submitted to the University of Kerala in partial fulfillment of the  
requirements for the degree of*

**MASTER OF SCIENCE IN HOME SCIENCE  
(FAMILY RESOURCE MANAGEMENT)**

**Candidate code: 65522129003**

**Exam code: 65521402**

**Subject code: HS 545B**

*Valued for Viva*



**SREE NARAYANA COLLEGE FOR WOMEN**

**KOLLAM, KERALA**

**2024**

*S. Sitara*  
*24/09/24*  
*Dr. Sitara Babu-D*

*S. Saima*  
*24/9/24*  
*DR. CHARITA C. P. M.*

# A STUDY ON HOMEMAKERS OPINIONS REGARDING THE USE OF ORGANIC PRODUCTS

Thesis submitted to the University of Kerala  
in partial fulfilment of the requirement for the Degree of

**MASTER OF SCIENCE IN HOME SCIENCE  
(FAMILY RESOURCE MANAGEMENT)**

**Candidate Code : 65522129005**

**Exam Code : 65521402**

**Subject Code : HS 545B**



*Valued for Uva*

*Dattala  
24/09/24  
DR. SITHYAN BAKER D*



**SREE NARAYANA COLLEGE FOR WOMEN**

**KOLLAM**

**2024**

*Sarimo  
21/9/24  
DR. GAREYIA CUPPA*

# EMPOWEMENT AND IT'S INFLUENCE ON WOMEN'S ATTITUDE TOWARDS DOWRY

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KOLLAM, KERALA**

**2024**

*S. S. S. S.*  
*24/09/24*  
*Dr. S. S. S. S.*

*S. S. S. S.*  
*24/09/24*  
*DR. GAREMA CUPTA.*

**THE INFLUENCE OF SALES PROMOTION STRATEGIES OF  
ONLINE BEAUTY VLOGGERS ON THE PURCHASING OF  
COSMETIC PRODUCTS AMONG COLLEGE GIRLS**

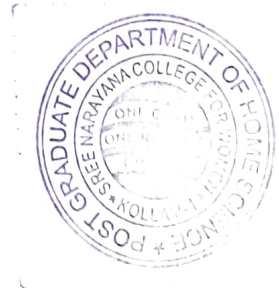
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*Valid for Viva*

*Suliana  
24/09/2024  
Dr. Sitikarna Balaen-V*

2022 - 2024

*Sarima  
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