

Preparation and characterization of activated carbon from wood and coconut shell

A Project report submitted for partial fulfilment of the requirement for the degree of

MASTER OF SCIENCE IN CHEMISTRY BY

Ms .I.BRISKY
(Register No: 2019MSCC05)



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3 rd cycle)
College with potential for excellence (2004-2021)
74 th Rank in India Ranking 2021 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

Mary Land,

MADURAI - 625 018

Under the guidance of

DR. S. SIVAPRAKASH

SENIOR SCIENTIST

CORROSION TESTING CENTRE DIVISION



CSIR-CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE,
MANDAPAM-623519

APRIL 2021



BONAFIDE CERTIFICATE

*This is to certify that the project report entitled “**PREPARATION OF ACTIVATED CARBON FROM COCONUT SHELL AND WOOD**”. Was carried out by Miss. **I.BRISKY** (Reg. no. **2019MSCC05**), under the guidance of **Dr. S.SIVAPRAKASH**, Senior scientist CECRI corrosion testing centre –mandapam unit and submitted to department of chemistry, **FATIMA COLLEGE (AUTONOMUS), MADURAI**, In a partial fulfilment of the requirements for the award of the degree of **MASTER OF SCIENCE** in chemistry, during the academic year 2020-2021*

INTERNAL GUIDE

DR.B.MEDONA

Head and Associate professor
Department of Chemistry
Fatima College, Madurai-625018

EXTERNAL GUIDE

DR. S.SIVAPRAKASH

Senior Scientist
Corrosion testing centre
CSIR-Central Electrochemical Research
Institute, mandapam-623519

Dr .B. MEDONA

Head & Associate Professor
Department of Chemistry
Fatima College, Madurai- 625018

EXTERNAL EXAMINER

DECLARATION

I do hereby declare that this dissertation entitled "**PREPARATION OF ACTIVATED CARBON FROM COCONUT SHELL AND WOOD.**" submitted to Madurai Kamaraj University in partial fulfilment of requirement for the award of **MASTER OF SCIENCE IN CHEMISTRY**, is a record of original research work done by me at CSIR-Central Electrochemical Research Institute (CECRI), mandapam, I also declare that this dissertation or part of work has not been published earlier elsewhere in any manner.

Place: Madurai -18

Date: 15. 04.2021



SIGNATURE OF CANDIDATE

I.BRISKY

(Register. No.: 2019MSCC05)

**SURFACE MODIFICATION AND ITS CHATACTERIZATION OF HIGHLY
DISPERSED COBALTOXIDE NANOPARTICLES BY A CATIONIC
SURFACTANT**

**A project report submitted for partial fulfillment of the requirements for the
degree of**

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

A. CHRISTINA

(REG.NO: 2019MSCC06)



FATIMA COLLEGE(AUTONOMOUS)

DEPARTMENT OF CHEMISTRY

MADURAI - 625 018.

Under the guidance of

Dr.J. Jeyasundari

Assistant professor, PG &Research Department of chemistry,



N.M.S.S.Vellaichamy Nadar college

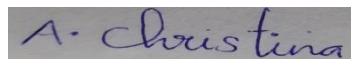
Nagamalai, Madurai- 625019

April - 2019

DECLARATION

I do hereby declare that this “SURFACE MODIFICATION AND ITS CHARACTERIZATION OF HIGHLY DISPERSED COBALTOXIDE NANOPARTICLES BY A CATIONIC SURFACTANT” presented in this report has been carried out by me under the supervision of Dr.S. SUKUMARI, Associate professor, Department of chemistry, Fatima college (autonomous), Madurai. The work presented here is in original and not formed the award of any other degree /Diploma /fellowship or other similar title to any candidate of any university.

Place: Madurai
Date: 15.4.2021

A handwritten signature in blue ink that reads "A. Christina".

Signature of the candidate

BONAFIDE CERTIFICATE

This is to certify that the thesis entitled “SURFACE MODIFICATION AND ITS CHATACTERIZATION OF HIGHLY DISPERSED COBALTOXIDE NANOPARTICLES BY A CATIONIC SURFACTANT” submitted to Fatima college, Madurai-625018 in partial fulfillment for the degree of Master of Science in Chemistry is a bonafide record of research work carried out by Ms. A.CHRISTINA (Reg.no.2019MSCC06) under the guidance of Dr.J.JEYASUNDARI, Assistant professor, PG & Research Department of chemistry, N.M.S.S.Vellaichamy Nadar college, Madurai-625019 in the academic year 2019-2021.



Internal Guide

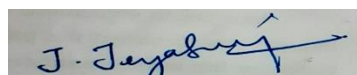
Dr. A.Rajeswari M.Sc.,M.Phil.,Ph.D

Assistant professor,

Department of chemistry,

Fatima college,

Madurai-625018



External Guide

Dr.J.Jeyasundari M.Sc.,M.Phil.,Ph.D

Assistant professor,

PG & Research Department of chemistry,

N.M.S.S.V.N. College,

Madurai-625 019.



HEAD OF THE DEPARTMENT

Dr. B.Medona M.Sc., Ph.D

Head & Associate professor,

Department of chemistry,

Fatima college,

Madurai-625 018.

SURFACE MODIFICATION AND ITS CHARACTERIZATION OF HIGHLY DISPERSED COBALT OXIDE NANOPARTICLES BY A ANIONIC SURFACTANT

*A project report submitted for partial fulfillment of the
requirements for the degree of*

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

**J.CHIRSTIYA
(REG.NO: 2019MSCC07)**



FATIMA COLLEGE (AUTONOMOUS),

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY,

**Mary Land,
MADURAI - 625 018.**

Under the guidance of
DR.J. JEYASUNDARI

Assistant professor, PG & Research Department of chemistry,



N.M.S.S.VELLAICHAMY NADAR COLLEGE,

Re-Accredited By NAAC with 'A' Grade

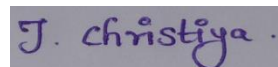
An ISO 9001:2008 Certified Institution

Nagamalai, Madurai – 625 019.

April - 2021

DECLARATION

I do hereby declare that this “**SURFACE MODIFICATION AND ITS CHARACTERIZATION OF HIGHLY DISPERSED COBALT OXIDE NANOPARTICLES BY A ANIOIC SURFACTANT**” presented in this report has been carried out by me under the supervision of **Dr.A.Rajeswari**, Assistant professor, Department of chemistry, Fatima college (autonomous), Madurai. The work presented here is in original and not formed the award of any other degree /Diploma /fellowship or other similar title to any candidate of any university.



Place: Madurai

(J.Christiya)

Date: 15.04.2021

Signature of the candidate

BONAFIDE CERTIFICATE

This is to certify that the thesis entitled “**SURFACE MODIFICATION AND ITS CHARACTERIZATION OF HIGHLY DISPERSED COBALT OXIDE NANOPARTICLES BY A ANIOIC SURFACTANT**” submitted to Fatima college, Madurai-625018 in partial fulfillment for the degree of Master of Science in Chemistry is a bonafide record of research work carried out by **Ms. J.CHRISTIYA(Reg,no.2019MSCC07)** under the guidance of **Dr.J.JEYASUNDARI**, Assistant professor, PG & Research Department of chemistry, N.M.S.S.Vellaichamy Nadar college, Madurai-625019 in the academic year 2020-2021.



INTERNAL GUIDE

Dr.A.Rajeswari M.Sc.,M.Phil.,Ph.D

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Fatima college,

Madurai-625 018.



HEAD OF THE DEPARTMENT

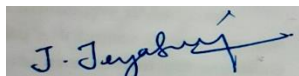
Dr.B.Medona M.Sc.,Ph.D,

Head & Associate professor,

Department of chemistry,

Fatima college,

Madurai-625 018.



EXTERNAL GUIDE

Dr.J.Jeyasundari M.Sc.,M.Phil.,Ph.D

Assistant professor,

PG & Research Department of chemistry,

N.M.S.S.V.N. College,

Madurai-625 019

EXTERNAL EXAMINER

SILVER SULFIDE SENSITIZED ZINC OXIDE-NICKEL OXIDE NANOCOMPOSITES FOR PHOTOCATALYTIC APPLICATIONS

*A Project report submitted for partial fulfillment of the
Requirement for the degree of*

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

Ms. S. DEEPA

(Register No: 2019MSCC08)



DEPARTMENT OF CHEMISTRY

FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

74th Rank in India Ranking 2020 (NIRF) by MHRD

MARY LAND, MDURAI – 625 018

Under the Guidance of

Dr. J. ANNARAJ

Assistant professor and Head



Department of Materials science

School of Chemistry

Madurai Kamaraj University

University with potential for excellence

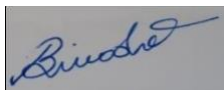
(Re-Accredited with A++ Grade by NAAC (CGPA: 3.54) in the fourth cycle)

Madurai– 625021.

April - 2021


BONAFIDE CERTIFICATE

This is to certify that **Ms. S.DEEPA**, M.Sc., (Chemistry) student of Fatima College, Madurai has done the project work entitled “**Silver sulfide sensitized zinc oxide nickel oxide nanocomposites for photocatalytic applications**” during the academic year 2020-2021 under the supervision of **Dr. J.ANNARAJ**, Assistant professor and Head i/c, Department of Materials Science, School of Chemistry, Madurai Kamaraj University, Madurai– 625021. This is to certify that no part of the work has been presented for any degree / diploma in any other form.



Internal Guide

Dr. B. VINOSHA
Assistant Professor
Department of Chemistry
Fatima College
Madurai- 625018



External Guide

Dr. J. ANNARAJ
Assistant professor and Head i/c
Department of Materials science
School of Chemistry
Madurai Kamaraj University
Madurai- 625021



Endorsement

Dr. B.MEDONA
Head & Associate Professor,
Department of Chemistry,
Fatima college,
Madurai -625018.

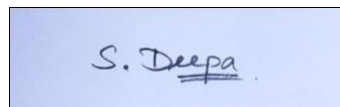
EXTERNAL EXAMINER

DECLARATION

I do here by declare that this dissertation entitled “**Silver sulfide sensitized zinc oxide nickel oxide nanocomposites for photocatalytic applications**” submitted to Fatima College in partial fulfillment of requirement for the award of **MASTER OF SCIENCE IN CHEMISTRY**, is a record of original research work done by me. I also declare that this dissertation or part of work has not been published earlier elsewhere in any manner.

Place: Madurai - 18.

Date: 15.04.2021



Signature of the Candidate

S. DEEPA (2019MSCC08)

EFFECT OF SUBSTITUTION ON STRUCTURE, ABSORPTION AND EMISSION PROPERTIES OF ORGANOBORON DYES

A project report submitted for

Partial fulfilment of the requirement for the award of degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

P.EBCIBA DENIYAL

[Reg. No. 2019MSCC10]



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

Mary Land,

MADURAI -625 018

Under the External guidance of

Dr.G.SIVARAMAN



ASSISTANT PROFESSOR,

DEPARTMENT OF CHEMISTRY

GANDHIGRAM RURAL INSTITUTE

DINDIGUL-624 302

APRIL -2021

BONAFIDE CERTIFICATE

This is to certify that the project report “**Effect of substitution on structure, Absorption and Emission Properties of Organoboron dyes**” was carried out by **Ms. P.EBCIBA DENIYAL** (Reg. No. 2019MSCC10), under the guidance of **Dr.G.SIVARAMAN** and submitted to Department of Chemistry, **FATIMA COLLEGE (AUTONOMOUS), MADURAI**, in a partial fulfillment of the requirements for the award of the Degree of **MASTER OF SCIENCE** in Chemistry, during the academic year 2020-2021.



Dr.B.VINOSHA

Internal Guide

Assistant professor,
Department of Chemistry,
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Dr.G.SIVARAMAN

External Guide

Assistant professor,
Department of Chemistry,
Gandhigram Rural Institute
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Dr.B.MEDONA

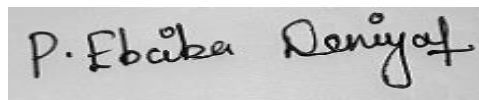
Head of the Department,

Department of Chemistry,
Fatima College,
Madurai- 625018.

EXTERNAL EXAMINER

DECLARATION

I hereby declare that this project work entitled “**Effect of substitution on structure, Absorption and Emission Properties of Organoboron dyes**” has been originally carried out by me in Gandhigram Rural Institute laboratory during the academic year 2020-2021, under the guidance of, **Dr.G.Sivaraman** Assistant Professor, Department of Chemistry Gandhigram Rural Institute Dindigul. and this work or any part of this has not been submitted elsewhere for any other degree.

A handwritten signature in black ink on a light gray background. The signature reads "P. Ebciba Deniyal" in a cursive script.

Place: Madurai

Signature of the Candidate

Date: 20.04.2021

(P.EBCIBA DENIYAL)

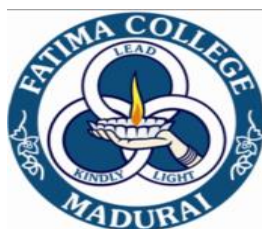
SYNTHESIS AND CHARACTERIZATION OF HETEROCYCLIC BENZIMIDAZOLE DERIVATIVE

*A project report submitted for
Partial fulfilment of the requirement for the award of degree of*

**MASTER OF SCIENCE IN CHEMISTRY
Submitted by**

IRUDAYA RINCI J

[Reg. No. 2019MSCC13]



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)
College with Potential for Excellence (2004-2019)
74th Rank in India Ranking 2020 (NIRF) by MHRD

Under the External guidance of

Dr.G.SIVARAMAN

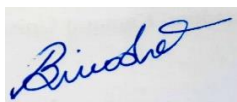


**ASSISTANT PROFESSOR
DEPARTMENT OF CHEMISTRY
GANDHIGRAM RURAL INSTITUTE
DINDIGUL-624 302**

APRIL -2021

CERTIFICATE

This is to certify that the project report “***SYNTHESIS AND CHARACTERIZATION OF HETEROCYCLIC BENZIMIDAZOLE DERIVATIVE***” was carried out by **Miss. IRUDAYA RINCI J (Reg. No. 2019MSCC13)**, under the guidance of **Dr.G.Sivaraman** and submitted to Department of Chemistry, Fatima College (Autonomous), Madurai, in a partial fulfillment of the requirements for the award of the Degree of Master of Science in Chemistry, during the academic year 2020-2021.



Dr.B.VINOSHA

Internal Guide

Assistant professor,
Department of Chemistry,
Fatima College,
Madurai- 625018.



Dr.G.SIVARAMAN

External Guide

Assistant professor,
Department of Chemistry,
Gandhigram Rural Institute,
Dindigul.



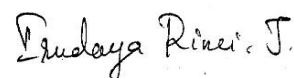
Dr.B.MEDONA

Associate professor,
Head of the Department,
Department of Chemistry,
Fatima College,
Madurai- 625018.

EXTERNAL EXAMINER

DECLARATION

I hereby declare that this project work entitled “***SYNTHESIS AND CHARACTERIZATION OF HETEROCYCLIC BENZIMIDAZOLE DERIVATIVE***” has been originally carried out by me in Gandhigram Rural Institute Laboratory during the academic year 2020-2021, under the guidance of **Dr. G. Sivaraman**, Assistant Professor, Department of Chemistry, Gandhigram Rural Institute, Dindigul, and this work or any part of this has not been submitted elsewhere for any other degree.



Place: Madurai

Date: 15.04.2021

Signature of the Candidate

(IRUDAYA RINCI J)

**STUDIES ON DECOLOURIZATION PROCESS OF SIMULATED REACTIVE
TEXTILE DYE EFFLUENTS BY ELECTROCHEMICAL METHOD**

A Thesis submitted to the Fatima College, Madurai

In partial fulfillment of the requirements

For the award of the Degree of

MASTER OF SCIENCE

IN CHEMISTRY

Submitted by

G.NANDHINI

(Reg. No: 2019MSCC17)



DEPARTMENT OF CHEMISTRY

FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

74th Rank in India Ranking 2020 (NIRF) by MHRD

MARY LAND, MADURAI-625 018

Under the Guidance of

Dr.A. SAHAYA RAJA ,M.Sc.,M.Phil.,B.Ed.,Ph.D.,

Assistant Professor of Chemistry

PG & Research Department of Chemistry

G.T.N. Arts College (Autonomous)

Dindigul –624 005.





Dr.A, Sahaya Raja,M.Sc.,M.Phil.,B.Ed.,Ph.D.,

Assistant Professor of Chemistry

PG & Research Department of Chemistry

G.T.N. Arts College (Autonomous)

Dindigul – 624 005.

CERTIFICATE

Certified that the thesis **“STUDIES ON DEOLOURIZATION PROCESS OF SIMULATED REACTIVE TEXTILE EFFLUENTS BY ELECTROCHEMICAL METHOD”** Submitted by **G.NANDHINI (Reg.No:2019MSCC17)** Department of Chemistry, Fatima college, Madurai, Tamil Nadu. Is a record of research work carried out by her for the Degree of Master of Science in Chemistry under my guidance during the period from (20.01.2021-10.03.2021) .This thesis is an original work of the candidate and to the best of my knowledge has not been submitted, in part or in full, for any Diploma, Degree, Associate ship, Fellowship or other similar titles in this or any other university. No portion of the thesis is a reproduction from any other source, published or unpublished, without acknowledgement.

Place : Dindigul

Signature of the Supervisor

Date : 15.04.2021

BONAFIDE CERTIFICATE

This is to certify that the project work entitled **“STUDIES ON DECOLOURIZATION PROCESS OF SIMULATED REACTIVE TEXTILE EFFLUENTS BY ELECTROCHEMICAL METHOD”**

Submitted to Fatima College (Autonomous), Madurai in partial fulfillment for the award of the degree of Master of Science in Chemistry is a Bonafide record of the work carried out at **Dr.A.Sahaya Raja ,M.Sc. ,M.Phil., B.Ed. ,Ph.D.,** Assistant Professor Of Chemistry ,PG & Research Department Of Chemistry ,G.T.N Arts College (Autonomous), Dindigul by **G.Nandhini (Reg.No: 2019MSCC17)** during the period of **(20.01.2021-10.03.2021)** of her study in Department of Chemistry , Fatima College , Madurai-625 018.



INTERNAL GUIDE

Mrs. R M. Nagalakshmi, M.Sc., M.Phil., B.Ed.

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HEAD & ASSOCIATE PROFESSOR

Dr. B. Medona, M.Sc., Ph.D.,

Head of the Department,

Department of Chemistry,

Fatima College (Autonomous),

Madurai.



EXTERNAL GUIDE

Dr.A, Sahaya Raja,M.Sc.,M.Phil.,B.Ed.,Ph.D.,

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PG & Research Department of Chemistry,

G.T.N. Arts College (Autonomous),

Dindigul.

EXTERNAL EXAMINER



FATIMA COLLEGE (AUTONOMOUS),
Re-Accredited with 'A' Grade by NAAC (3rd Cycle)
74th Rank in India Ranking 2020 (NIRF) by MHRD
MARY LAND, MADURAI - 625 018.

DECLARATION

I declare that the thesis **“Studies on Decolourization Process of Simulated Reactive Textile Dye Effluents by Electrochemical Method”** is the result of a study originally carried out by me independently under the guidance and supervisor of **Dr.A.SahayaRaja,M.Sc.,M.Phil.,B.Ed.,Ph.D.,** carried out at **Assistant Professor Of Chemistry ,PG & Research Department Of Chemistry ,G.T.N Arts College(Autonomous), Dindigul.** This work has not been submitted earlier, in full or in part, for any Diploma or Degree in this or any other university.

I also declare that no part(s) of the thesis are a reproduction from any other source, published or unpublished.

Place : Madurai

Signature of the Candidate

Date: 15.04.2021

G.NANDHINI (2019MSCC17)

G. Nandhini

ACKNOWLEDGEMENT

First of all I thank the Lord Almighty for having showered his Grace and Blessings in every endeavor of my research programme.

I take it as an immense pleasure in acknowledging all the important people who have helped, inspired and their moral support by encouraging me in various ways thus making this project a successful one.

I sincerely acknowledge the overwhelming gratitude to **Dr.A.Sahaya Raja, M.Sc.,M.Phil.,B.Ed.,Ph.D.,** Research Supervisor, G.T.N. Arts College(Autonomous), Dindigul for his meticulous care, continuous encouragement, patience, timely feedback all through the research work, help and support right from the selection of topic to the completion and compilation of the research study efficiently and effectively.

I express my thanks to The HOD, **Dr. B. Medona, M.Sc., Ph.D.,** for her encouragement and support.

My sincere thanks **Mrs. R M. Nagalakshmi, M.Sc., M.Phil., B.Ed** for her innovative suggestions.

I express sincere thanks to my family members, and my friends for their kind help throughout the thesis.

Finally, I thank almighty for lifting my spirits during tough times and giving me the courage to explore myself.

G.NANDHINI
(2019MSCC17)

“QUALITY TEST IN CALCITE, DOLOMITE AND LIMESTONE”

A project report submitted for partial fulfilment of the requirement

for the degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

MS.A. NIVETHA

(Register No. 2019MSCC18)

DEPARTMENT OF CHEMISTRY



Fatima college, (Autonomous)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

Mary Land, Madurai-625018, Tamil Nadu.

at



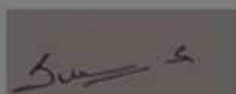
NAGA LIMITED MINERALS

No.9, TRICHY ROAD, DINDIDUL – 624 005.

APRIL 2021

CERTIFICATE

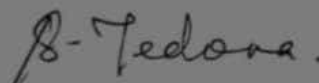
This is to certify that the internship report entitled “**QUALITY TEST IN CALCITE DOLOMITE AND LIME STONE**” was carried out by **A. NIVETHA (Registernumber-2019MSCC18)** under the guidance of Mr. T. SIVA CHANDRAMOORTHY and submitted to department of Chemistry, Fatima college, Madurai.



Internal Guide

Dr. S. SUKUMARI, MSc B.Ed. MPhil Ph.D.

Assistant professor,
Department of chemistry,
Fatima college,
Madurai.



Head of the Department

Dr.B. MEDONA M.Sc. Ph.D.

Head & Associate Professor,
Department of chemistry,
Fatima college,
Madurai.



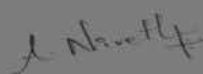
External Guide

Mr. Siva Chandramoorthy T
Manager-Human Resource

EXTERNAL EXAMINER

DECLARATION

I do hereby declare that this dissertation entitled **“QUALITY TEST IN CALCITE DOLOMITE AND LIME STONE”** submitted to Madurai Kamaraj university in partial fulfilment of requirement for the award of **MASTER OF SCIENCE IN CHEMISTRY** is a record of internship work done by me at **NAGA LIMITED MINERALS**, No.9 Trichy road, Dindigul 624005.



A. NIVETHA

(REG NO: 2019MSCC18)

GSTIN : 33AAACN2369L1ZD - State Code : 33
PAN : AAACN2369L
CIN : L24246TN1991PLC020409



NAGA LIMITED - MINERALS

No. 9, TRICHY ROAD, DINDIGUL - 624 005. FAX : 0451 - 2410122

Mobile : 099449 90108 / 099449 90116

E-mail : hcm@nagamills.com

NLMD / HR / DGL / 2020

Date:03.11.2020

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms.Nivetha A (Reg.No:2019MSCC18) 2nd year M.Sc Chemistry of Fatima College, Madurai-625 018 had successfully undergone her Internship Training from 03.10.2020 to 03.11.2020 in our organization.

During the training it was observed that she showed much interest in learning things.

For NAGA LIMITED - MINERALS

Silva chandramoorthy T
Manager - Human Resources



Administrative & Head Office : No. 1, Trichy Road, Dindigul - 624 005, Tamil Nadu, India.

Ph : 0451-2410121, 2410188 Fax : 0451-2410122

Regd Office : No. 1, Annaspillai Street, George Town, Chennai - 600 001, Tamil Nadu, India.

Tele - Fax : 044-25363535 website : www.nagamills.com

**One-pot Access of 2H-pyran-3-carbonitriles from α -aroylketene
dithioacetals- Picric acid sensor by “Turn- off” mechanism**

*A project report submitted to
in partial fulfilment of the degree of*

MASTER OF SCIENCE IN CHEMISTRY

By

S. PRABHANATHI

(Reg. No. 2019MSCC20)



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

MADURAI – 625 018

Under the guidance of

Dr. S. SIVAKUMAR

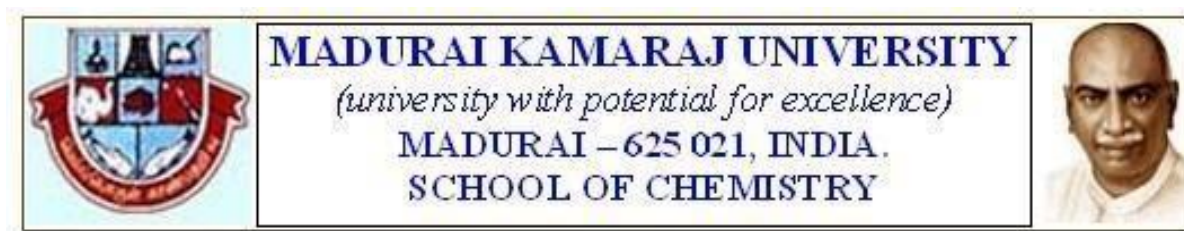


Department of Organic Chemistry School of Chemistry Madurai Kamaraj

University (*University with potential for excellence*) Madurai- 625 021.

April - 2021

CERTIFICATE



This is to certify that this dissertation entitled **2Hpyran3carbonitriles from α -aroylketene dithioacetals- Picric acid by turn off mechanism** submitted by **S. PRABHANATHI** for the award of Master of Philosophy at the Department of Organic Chemistry, School of Chemistry, Madurai Kamaraj University, Madurai-625 021 is based on the result of her studies under my supervision. This project or any part of this work has not been submitted elsewhere for any other degree or diploma.

A handwritten signature in black ink, appearing to read "Dr. S. Sivakumar".

Dr. S. SIVAKUMAR

Assistant Professor

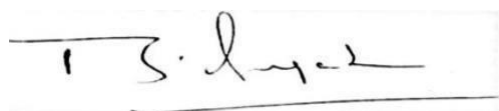
Department of Organic Chemistry

School of Chemistry

Kamaraj University Madurai- 625021

BONAFIDE CERTIFICATE

This is to certify the project work entitled **2H-pyran-3carbonitriles from α -aroylketene dithioacetals- Picric acid sensor by Turn off mechanism** to Fatima college Madurai-635018 in partial fulfilment for the Master of Science in Chemistry is a Bonafide certificate of research work carried out by **S.PRABHANATHI (Reg No -2019MSCC20)** under the guidance of **Dr.S.SIVAKUMAR** Assistant professor, Department of organic Chemistry, Madurai kamaraj University Madurai-625021 in the academic year 2019-2021



INTERNAL GUIDE

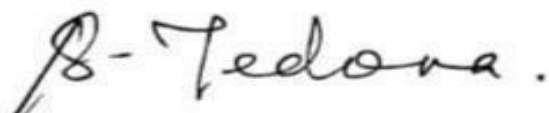
Dr. B. SUGANTHANA

Assistant Professor
Department of Chemistry
Fatima College
Madurai – 623 018.

EXTERNAL GUIDE

Dr. S. SIVAKUMAR

Assistant Professor,
Department of Organic Chemistry
School of Chemistry
Madurai Kamaraj University
Madurai – 625 021.



HEAD OF THE DEPARTMENT

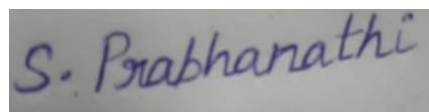
Dr. B. MEDONA, M. Sc., Ph. D.,

Head and Associate professor
Department of Chemistry
Fatima College
Madurai – 623 018.

EXTERNAL EXAMINER

DECLARATION

I hereby declare that the project work “*Base Induced Onepot Access of 2H-pyran-3-carbonitriles from α -aroylketene dithioacetals*” as Picric acid sensor by Turn off mechanism been originally and independently carried out by me in the Department of Organic Chemistry, School of Chemistry, Madurai Kamaraj University, Madurai – 625 021. It has not previously formed the basis for the award of any degree, diploma or other similar title of this or any other University.



Place: Madurai - 18

Date : 15.04.2021

Signature of the student

S.Prabhanathi

(Reg. No. 2019 MSCC20)

AGAR CHARACTERISATION FROM CARPOSPORIC AND TETRASPORIC PLANTS OF GRACILARIA EDULIS

A project report submitted the partial fulfilment of the requirement

For the degree of the

MASTER OF SCIENCE IN CHEMISTRY

By

A. PRINCY

(Register No: 2019MSCC21)



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

MADURAI – 625 018

Under the guidance of

Dr K. Eswaran

SENIOR PRINCIPAL SCIENTIST

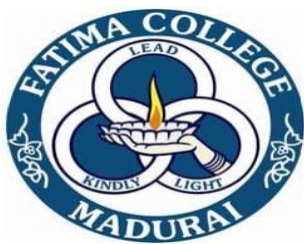


CSIR – CENTRAL SALT AND MARINE CHEMICAL RESEARCH

INSTITUTE (CSMCRI)

MANDAPAM CAMP

APRIL- 2021



BONAFIDE CERTIFICATE

This is to certify that the project report "*Agar Characterisation from Carposporic and Tetrasporic Plants of Gracilaria edulis*" was carried out by Miss. A. PRINCY (Reg. No. 2019MSCC21), under the guidance of Dr. K. Eswaran and submitted to Department of Chemistry, FATIMA COLLEGE (AUTONOMOUS), MADURAI, in partial fulfilment of the requirements for the award of the Degree of MASTER OF SCIENCE in Chemistry, during the academic year 2020-2021.

INTERNAL GUIDE

Dr. B. MEDONA

Head and Associate professor,
Department of Chemistry,
Fatima College,
Madurai-625018.

Dr B. MEDONA

Head and Associate Professor
Department of Chemistry,
Fatima College,
Madurai-625018.

EXTERNAL GUIDE

Dr. K. ESWARAN

Senior Principal Scientist,
CSIR – CSMCRI – MARS,
Mandapam camp-623519.

EXTERNAL EXAMINER

DECLARATION

I do hereby declare that this dissertation entitled “**AGAR CHARACTERISATION FROM CARPOSPORIC AND TETRASPOPORIC PLANTS OF *GRACILARIA EDULIS***” submitted to Fatima College in partial fulfilment of the requirement for the award of **MASTER OF SCIENCE in CHEMISTRY** is a record of original research work done by me under the guidance of **Dr K. Eswaran, Senior principle scientist CSIR–CSMCRI-MARS, Mandapam Camp.**



Place: Madurai-18

Signature of the candidate

Date: 15.04.2021

A. PRINCY

(Reg. No. 2019MSCC21)

**Development of an Environmentally Benign Inhibitor and studies of
the Synergistic Inhibition Effect between L serine and Zinc salt for
Carbon Steel Corrosion in Aqueous Solution**

*A project report submitted for partial
fulfillment of the requirement for the
degree of*

MASTER OF SCIENCE IN CHEMISTRY

BY

**Ms.R.Prithika
(2019MSCC22)**



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

**Mary Land,
MADURAI – 625 018**

Under the guidance of

Dr. A. Sahaya Raja



Assistant professor,
PG & Research department of Chemistry,
G.T.N Arts College (Autonomous),
Dindigul-05
APRIL 2021



Dr.A. Sahaya Raja,M.Sc.,M.Phil.,B.Ed.,Ph.D.,

Assistant Professor of Chemistry

PG & Research Department of Chemistry

G.T.N. Arts College (Autonomous)

Dindigul – 624 005.

CERTIFICATE

Certified that the thesis **“Development of an Environmentally Benign Inhibitor and studies of the Synergistic Inhibition Effect between L-Serine and Zinc salt for Carbon Steel Corrosion in Aqueous Solution”**. Submitted by **R. PRITHIKA , Reg.No. 2019MSCC22** at Fatima college (Autonomous) , Madurai, Tamil Nadu, is a record of research work carried out by her for the Degree of Master of Science in Chemistry under my guidance during the period from 20.01.2021- 10.03.2021. This thesis is an original work of the candidate and to the best of my knowledge has not been submitted, in part or in full, for any Diploma, Degree, Associate ship, Fellowship or other similar titles in this or any other university. No portion of the thesis is a reproduction from any other source, published or unpublished, without acknowledgement.

Place : Dindigul

Date : 15.04.2021

(Dr.A.Sahaya Raja)

BONAFIDE CERTIFICATE

This is to certify that the project work entitled **Development of an Environmentally Benign Inhibitor and studies of the Synergistic Inhibition Effect between L serine and Zinc salt for Carbon Steel Corrosion in Aqueous Solution** submitted to Fatima College (Autonomous), Madurai in partial fulfilment for the award of the degree of Master of Science in Chemistry is a Bonafide record of the work carried out at by **Ms. R.Prithika (Reg.No. 2019MSCC22)**, during the period of 20.01.2021 – 10.03.2021 of her study in department of Chemistry, Fatima College, Madurai- 625 018.



Signature of the External Guide

Dr.A. Sahaya Raja,

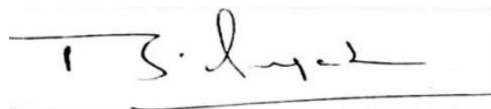
Assistant professor,

PG & Research department

of Chemistry,

G.T.N Arts college(Autonomous),

Dindigul-05.



Signature of the Internal Guide

Dr.B.Suganthana,

Assistant Professor,

Department of Chemistry,

Fatima college(Autonomous),

Madurai-18.



Signature of the Head of the Department

Dr.B.Medona,

Head & Associate professor,

Department of Chemistry,


Fatima college(Autonomous),

Madurai-18.

External Examiner

DECLARATION

I hereby declare that this project work entitled ' **Development of an Environmentally Benign Inhibitor and studies of the Synergistic Inhibition Effect between L serine and Zinc salt for Carbon Steel Corrosion in Aqueous Solution** ' has been originally carried out by me in PG Chemistry department laboratory during the academic year 2020-2021, under the guidance of **Dr.A.Sahaya Raja**, M.Sc.,M.Phil.,B.Ed.,Ph.D.,, G.T.N. Arts College (Autonomous), Dindigul and this work or any part of this has not been submitted elsewhere for any other degree.



Place: Madurai

Signature of the Candidate

Date: 15.04.2021

(R.PRITHIKA)

Reg.No : 2019MSCC22

Extraction of curcumin from Turmeric

*A project report submitted for partial
fulfillment of the requirement for the
degree of*

MASTER OF SCIENCE IN CHEMISTRY

BY

Ms.G.Slvagami

(2019MSCC23)



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with Potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

Mary Land,

MADURAI – 625 018

Under the guidance of

Mr.A.Gurusekar



Managing director,
Kiga natural extracts,
Cholapuram 626139



KIGA NATURAL EXTRACTS

Manufacturer & Exporters of Curcumin 95%, Turmeric Essential Oil, Oleoresins

148 C/5, Dhalavaipuram Road, Melur, CHOLAPURAM, RAJAPALAYAM - 626139, Virudhunagar Dist., Tamil Nadu, INDIA.

CERTIFICATE

This is to certify that **Ms G.SIVAGAMI, M.Sc., (Chemistry)**
Second Year Student of Fatima College, Madurai, has
carried out Project work on "**Extraction of Curcumin from
Turmeric**" under the guidance of **A. GURUSEKAR** -
Production Manager at this Unit during the period from 25th
January 2021 to 25th February 2021

Date: 30.02.2021
Rajapalayam



For KIGA NATURAL EXTRACTS

(I.K. RAMASUBRAMANIAN)
L.A. Holder.

DECLARATION

I affirm that the project work titled “extraction of curcumin from turmeric” being submitted in partial fulfillment for the award of MASTER OF SCIENCE IN CHEMISTRY is the original work carried out by me. It has not formed the part of any other project work submitted for award of any degree or diploma, either in this or any other university.



PLACE:MADURAI

SIGNATURE OF CANDIDATE

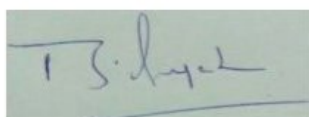
DATE:15.04.2021

G.SIVAGAMI

REG.NO:2019MSCC23

BONAFIDE CERTIFICATE

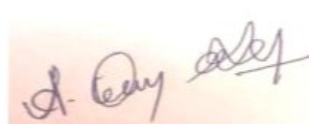
This is to certify that the project report entitled “extraction of curcumin from turmeric” submitted to Fatima college (autonomous), Madurai in partial fulfillment for the award of the degree of Master of science in chemistry is a Bonafide record of the work carried out at **KIGA NATURAL EXTRACTS** by **Ms.G.Sivagami (RegNo: 2019MSCC23)**, during the period of 25.01.2021 to 25.01. 2021 of her study in department of chemistry Fatima College, Madurai-625 018.



INTERNAL GUIDE

Dr.B.Suganthana

Assistant professor,
Department of chemistry,
Fatima College,
Madurai - 625 018.



EXTERNAL GUIDE

Mr.A.Grusekar

Managing director
kiga natural extracts,
cholapuram,
Virudhunagar.



Head of the department

Dr.B.Medona,

Head and associate professor,
Department chemistry,
Fatima college ,
Madurai-18

External Examiner

**AN EFFICIENT ELECTROCATALYST FOR THE DETECTION OF
CHLORAMPHENICOL BASED ON DYSPROSIUM MOLYBDATE ANCHORED
GRAPHENE MODIFIED GLASSY CARBON ELECTRODE**

*A project report submitted for partial fulfillment of the
requirement for the award of degree of*

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

Ms. M. SOWMIYA
[Reg. No. 2019MSCC24]



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd cycle)

College with potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

**Mary Land,
MADURAI – 625018**

Under the External guidance of

Dr. A. JEEVIKA

Assistant Professor

Department of Chemistry



THIAGARAJAR COLLEGE

Re- accredited with "A++" Grade by NAAC

Ranked 22th in NIRF 2020

Madurai – 625009

APRIL -2021



Thiagarajar College, Madurai-9

(An Autonomous Institution affiliated of the Madurai Kamaraj University)
Re-Accredited with 'A⁺⁺' Grade by NAAC, Ranked 22nd in NIRF

Dr. A. Jeevika
Assistant Professor
Department of Chemistry
Thiagarajar College
Madurai-9.

15-04-2021

CERTIFICATE

This is to certify that the M.Sc project work entitled **“AN EFFICIENT ELECTROCATALYST FOR THE DETECTION OF CHLORAMPHENICOL BASED ON DYSPROSIUM MOLYBDATE ANCHORED GRAPHENE MODIFIED GLASSY CARBON ELECTRODE”** submitted by **Ms. M. SOWMIYA (Reg. No. 2019MSCC24)**, for the partial fulfillment of the award of **MASTER OF SCIENCE** in **CHEMISTRY** is a record of project work done under my supervision during the period of 21st January 2021 till 15th April 2021. Further, it is also certified that the dissertation has not been reproduced elsewhere for partial fulfillment of degree or diploma.

[Dr. A. Jeevika]

CERTIFICATE

This is to certify that the project report “AN EFFICIENT ELECTROCATALYST FOR THE DETECTION OF CHLORAMPHENICOL BASED ON DYSPROSIUM MOLYBDATE ANCHORED GRAPHENE MODIFIED GLASSY CARBON ELECTRODE” was carried out by **Ms. M. Sowmiya (Reg. No. 2019MSCC24)**, under the guidance of **Dr. R. Sarika** and submitted to Department of Chemistry, **FATIMA COLLEGE (AUTONOMOUS), MADURAI**, in a partial fulfillment of the requirements for the award of the Degree of **MASTER OF SCIENCE** in Chemistry, during the academic year 2019-2021.



INTERNAL GUIDE

Dr.R. SARIKA M.Sc, M.Phil, Ph.D.
Assistant Professor,
Department of Chemistry,
Fatima College,
Madurai- 625018.



EXTERNAL GUIDE

Dr. A. JEEVIKA M.Sc, M.Phil, Ph.D.
Assistant Professor,
Department of Chemistry,
Thiagarajar College,
Madurai- 625009.



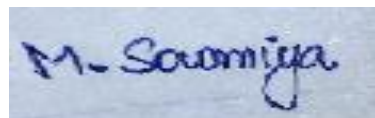
HEAD OF THE DEPARTMENT

Dr. B. MEDONA M.Sc., Ph.D.
Head & Associate Professor
Department of Chemistry,
Fatima College,
Madurai – 625018.

EXTERNAL EXAMINER

DECLARATION

I hereby declare that this project work entitled “**AN EFFICIENT ELECTROCATALYST FOR THE DETECTION OF CHLORAMPHENICOL BASED ON DYSPROSIUM MOLYBDATE ANCHORED GRAPHENE MODIFIED GLASSY CARBON ELECTRODE**” has been originally carried out by me in PG Department Chemistry laboratory during the academic year 2019-2020, under the guidance of **Dr. A. JEEVIKA, Assistant Professor of Chemistry, Thiagarajar College, Madurai -09**, and this work or any part of this has not been submitted elsewhere for any other degree.

A rectangular box containing a handwritten signature in blue ink that reads "M. Sowmiya".

Place: Madurai

Signature of the Candidate

Date:15.04.2021

(M. SOWMIYA)

SYNTHESIS AND CHARACTERIZATION OF BISMUTH INCORPORATED MULTIWALLED CARBON NANOTUBES.

A Project report submitted for partial fulfillment of the Requirement for the degree of

MASTER OF SCIENCE IN CHEMISTRY

By

Ms. R.SRIJAA

(Register No: 2019MSCC25)



FATIMA COLLEGE (AUTONOMOUS)

DEPARTMENT OF CHEMISTRY

[Re-Accredited with 'A' Grade by NAAC (3rd cycle)

74th Rank in India Ranking 2020(NIRF) by MHRD]

Mary land, MADURAI – 625018

Under the Guidance of

Dr. J.ANNARAJ

Assistant professor and Head



Department of Materials science

School of Chemistry

Madurai Kamaraj university

[University with Potential for Excellence

Re-Accredited with A++ Grade by NAAC (CGPA: 3.54) in the Fourth Cycle]

Madurai– 625021.

April – 2021

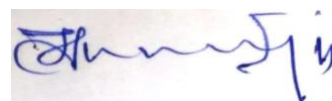
BONAFIDE CERTIFICATE

This is to certify that Ms. R.SRIJAA, M.Sc., (Chemistry) student of Fatima College, Madurai has done the project work entitled “**Synthesis and characterization of bismuth incorporated multiwalled carbon nanotubes**” during the academic year 2020-2021 under the supervision of Dr. J.ANNARAJ ,Assistant professor and Head i/c ,Department of Materials Science, Kamaraj University, Madurai– 625021.

This is to certify that no part of the work has been presented for any degree / diploma in any other form.



Mrs. R.M. Nagalakshmi, M.Sc., M.Phil, B.Ed
Internal guide
Assistant Professor
Department of Chemistry
Fatima College
Madurai- 625018



Dr. J. Annaraj
External guide
Assistant professor and Head i/c
Department of Materials Science
School of Chemistry
Madurai Kamaraj University
Madurai- 625021.



Dr. B. Medona
Head & Associate Professor,
Department of Chemistry,
Fatima College,
Madurai -625018.

External examiner

DECLARATION

I do here by declare that this dissertation entitled **“Synthesis and characterization of bismuth incorporated multiwalled carbon nanotubes”** submitted to Fatima College in partial fulfillment of requirement for the award of **MASTER OF SCIENCE IN CHEMISTRY**, is a record of original research work done by me. I also declare that this dissertation or part of work has not been published earlier elsewhere in any manner.



Place: Madurai - 18.

Date: 15. 04.2021

Signature of the candidate

R.SRIJAA (Register2019MSCC25)

**ANovel TURN-OFF FLUORESCENCE SENSOR PROBE FOR Cu (II) RECOGNITION
Via STATIC QUENCHING USING SCHIFF BASE DERIVED FROM L-TRYPTOPHAN
AND NITROBENZALDEHYDE**

*A project report submitted for
partial fulfilment of the requirement for the award of degree of*

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

**Ms. A. SUMITHRA DEVI
[Reg. No. 2019MSCC26]**



FATIMA COLLEGE (AUTONOMOUS)

Re- Accredited with 'A' Grade by NAAC(3rd cycle)

College with potential for excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF by MHRD)

DEPARTMENT OF CHEMISTRY

Mary land

MADURAI -625 018

Under the External guidance of

Dr. A. JEEVIKA



Department of Chemistry

Thiagarajar College

Madurai – 625 009.

APRIL -2021



Thiagarajar College, Madurai-9

(An Autonomous Institution affiliated of the Madurai Kamaraj University)

Re-Accredited with 'A⁺⁺' Grade by NAAC, Ranked 22nd in NIRF

Dr. A. Jeevika

15-04-2021

Assistant Professor

Department of Chemistry

Thiagarajar College

Madurai-9.

CERTIFICATE

This is to certify that the M.Sc project work entitled **"A NOVEL TURN-OFF FLUORESCENCE SENSOR PROBE FOR CU (II) RECOGNITION USING SCHIFF BASE DERIVED FROM L-TRYPTOPHAN AND NITROBENZALDEHYDE"** submitted by **Ms. A. SUMITHRA DEVI (Reg. No. 2019MSCC26)**, for the partial fulfillment of the award of **MASTER OF SCIENCE** in **CHEMISTRY** is a record of project work done under my supervision during the period of 21st January 2021 till 15th April 2021. Further, it is also certified that the dissertation has not been reproduced elsewhere for partial fulfillment of degree or diploma.

[Dr. A. Jeevika]

CERTIFICATE

This is to certify that the project report “A NOVEL TURN-OFF FLUORESCENCE SENSOR PROBE FOR CU (II) RECOGNITION USING SCHIFF BASE DERIVED FROM L-TRYPTOPHAN AND NITROBENZALDEHYDE” was carried out by Ms. A. SUMITHRA DEVI (Reg. No. 2019MSCC26), under the guidance of Dr. R. Sarika and submitted to Department of Chemistry, FATIMA COLLEGE (AUTONOMOUS), MADURAI, in a partial fulfillment of the requirements for the award of the Degree of MASTER OF SCIENCE in Chemistry, during the academic year 2019-2021.



INTERNAL GUIDE

Dr. R. SARIKA M.Sc, M.Phil, Ph.D.
Assistant Professor,
Department of Chemistry,
Fatima College,
Madurai-625018.



EXTERNAL GUIDE

Dr. A. JEEVIKAM. Sc, M.Phil, Ph.D.
Assistant Professor,
Department of Chemistry,
Thiagarajar College,
Madurai-625009.



HEAD OF THE DEPARTMENT

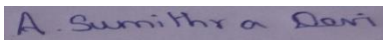
Dr. B. MEDONA M.Sc., Ph.D.
Head & Associate Professor
Department of Chemistry,
Fatima College,
Madurai – 625018.

EXTERNAL EXAMINER

DECLARATION

I hereby declare that this project work entitled “**A NOVEL TURN-OFF FLUORESCENCE SENSOR PROBE FOR Cu (II) RECOGNITION Via STATIC QUENCHING USING SCHIFF BASE DERIVED FROM L-TRYPTOHAN AND NITROBENZALGEHYDE**” has been originally carried out by me in PG Chemistry department laboratory during the academic year 2019-2020, under the guidance of **Dr. A. Jeevika** Assistant Professor of Chemistry, Thiagarajar College, Madurai -09, and this work or any part of this has not been submitted elsewhere for any other degree.

Place: Madurai



Signature of the Candidate

Date: 15/04/2021

(A. SUMITHRA DEVI)

**CATIONIC SURFACTANT ASSISTED SYNTHESIS, PHYSIOCHEMICAL
CHARACTERIZATION OF ZINC OXIDE NANOPARTICLES
AND ITS ANTIBACTERIAL ACTIVITY**

*A project report submitted for partial fulfillment of the
requirements for the degree of*

MASTER OF SCIENCE IN CHEMISTRY

Submitted by

K. SUREKA
(REG.NO: 2019MSCC27)



FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

College with potential for Excellence (2004-2019)

74th Rank in India Ranking 2020 (NIRF) by MHRD

DEPARTMENT OF CHEMISTRY

Mary Land,
Madurai - 625 018.

Under the guidance of

Dr. J. JEYASUNDARI

Assistant professor, PG & Research Department of chemistry,



N.M.S.S. VELLAICHAMY NADAR COLLEGE

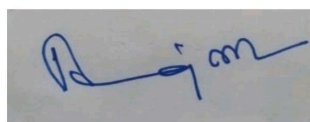
(Re-Accredited By NAAC with 'A' Grade An ISO 9001:2008 Certified Institution)

Nagamalai, Madurai- 625019.

April - 2021

BONAFIDE CERTIFICATE

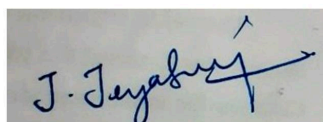
This is to certify that the thesis entitled "**CATIONIC SURFACTANT ASSISTED SYNTHESIS, PHYSIOCHEMICAL CHARACTERIZATION OF ZINCOXIDE NANOPARTICLES AND ITS ANTIBACTERIAL ACTIVITY**" submitted to Fatima college, Madurai-625018 in partial fulfillment for the degree of Master of Science in Chemistry is a bonafide record of research work carried out by **Ms. K.SUREKA (Reg.no: 2019MSCC27)** under the guidance of Dr. J.JEYASUNDARI, Assistant professor, PG & Research Department of chemistry, N.M.S.S. Vellaichamy Nadar college, Madurai-625019 in the academic year 2020-2021.



INTERNAL GUIDE

Dr. A. Rajeswari M.Sc.,M.Phil.,Ph.D

Assistant professor,
Department of Chemistry,
Fatima College,
Madurai-625018.



EXTERNAL GUIDE

Dr. J. Jeyasundari M.Sc.,M.Phil.,Ph.D

Assistant professor,
PG & Research Department of Chemistry,
N.M.S.S.V.N. College,
Madurai-625019.



HEAD OF THE DEPARTMENT

Dr. B. Medona M.Sc., Ph.D

Head & Associate professor,
Department of Chemistry,
Fatima College,
Madurai-625018.

EXTERNAL EXAMINER

DECLARATION

I do hereby declare that this "**CATIONIC SURFACTANT ASSISTED SYNTHESIS, PHYSIOCHEMICAL CHARACTERIZATION OF ZINCOXIDE NANOPARTICLES AND ITS ANTIBACTERIAL ACTIVITY**" presented in this report has been carried out by me under the supervision of Dr. A. RAJESWARI, Assistant professor, Department of chemistry, Fatima college (autonomous), Madurai. The work presented here is in original and not formed the award of any other degree /Diploma /fellowship or other similar title to any candidate of any university.

Place: Madurai.

Date: 15.04.2021

Signature of the candidate



K. SUREKA (Reg. No.: 2019MSCC27)