

EFFECT OF TRACE METALS AND ANIONS IN THE STABILITY OF HYDROGEN PEROXIDE

PROJECT WORK SUBMITTED TO

MAHATMA GANDHI UNIVERSITY

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE OF MASTER OF SCIENCE IN CHEMISTRY**

SUBMITTED BY

NIMA ALIAS

Register No: 210011009802

PG DEPARTMENT OF CHEMISTRY

ALPHONSA COLLEGE, PALA

ARUNAPURAM P.O, KOTTAYAM, KERALA-686574



UNDER THE GUIDENCE OF

Sri. PRADEESH NARAYANAN

MANAGER QUALITY CONTROL

HINDUSTAN ORGANIC CHEMICALS LIMITED

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APRIL 2023



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मानव संसाधन/पशिक्षण/प्रमाणपत्र/परियोजना/2023/10

HR/TRG/CERT-PROJ/2023/10

दिनांक DATE: 02.06.2023

प्रमाणपत्र CERTIFICATE

प्रमाणित किया जाता है कि सुश्री निमा अलियास (रजि.नंबर: 210011009802), एम एस सी (केमिस्ट्री) छात्रा, अल्फोंसा कॉलेज, पाला ने 05.04.2023 से 20.04.2023 तक की अवधि के दौरान हमारे गुणता नियंत्रण विभाग में "इफेक्ट ऑफ ट्रेस मेटल्स एंड अनिऑन्स इन दी स्टेबिलिटी ऑफ हाइड्रोजन पेरोक्साइड" विषय पर अपनी परियोजना कार्य संपन्न किया है।

Certified that Ms. NIMA ALIAS(Reg No.210011009802), M.Sc (Chemistry) student of Alphonsa College, Pala has done her Project work on "EFFECT OF TRACE METALS AND ANIONS IN THE STABILITY OF HYDROGEN PEROXIDE" in our Quality Control Department during the period from 05.04.2023 to 20.04.2023.



J Jagadeesh

(एम जे जगदीश M J JAGADEESH)

मुख्य महा प्रबन्धक (अभियांत्रिकी/एमएसएस/मानव संसाधन) & एफएम
CHIEF GENERAL MANAGER (Engineering/MSS/HR) & FM

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SYNTHESIS AND CHARACTERIZATION OF FLUORENONE BASED SCHIFF BASE LIGANDS

*A Dissertation Submitted to Mahatma Gandhi University in Partial Fulfillment of the
Requirement for the Degree of*

MASTER OF SCIENCE

Submitted by

AISWARYA RAJ. T

Register Number: 210011009803



PG Department of Chemistry

Alphonso College, Pala

Under the supervision of

Dr RENCHU SCARIA

Assistant Professor



Department of Chemistry

St Berchmans College, Changanassery

JULY 2023



CERTIFICATE

This is to certify that the dissertation entitled **“SYNTHESIS AND CHARACTERIZATION OF FLUORENONE BASED SCHIFF BASE LIGANDS”** is an authentic record of the work carried out by **Ms. AISWARYA RAJ T**, under my supervision in partial fulfillment for the degree of Master of Science in Chemistry and no part of this dissertation has been presented before for any other degree.

Place: Changanassery

Date: 31-07-2023

A handwritten signature in blue ink, appearing to read "Renchu Scaria".

Dr. Renchu Scaria

Supervising Teacher

Dr. RENCHU SCARIA
Assistant Professor
Department of Chemistry
St. Berchmans College (Autonomous)
Changanassery, Pin: 686 101
Kottayam Dist., Kerala

**Zein Grafted Pluronic -108 for the Effective Transdermal
Delivery of Hydrophobic Curcumin and Hydrophilic 5-
Fluorouracil for Cancer Therapy**

*Dissertation Submitted to the Mahatma Gandhi University in partial
fulfilment of the requirements for the award of the Degree of Master of
Science in Chemistry*

Submitted by
AJMI S. JAVAD
(Reg.no.210011009804)



**PG Department of Chemistry
Alphonsa College, Pala**

Under the supervision of
Dr. T. S. Anirudhan
Emeritus Professor



**DEPARTMENT OF CHEMISTRY
SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES
UNIVERSITY OF KERALA, KARIAVATTOM
THIRUVANANTHAPURAM
AUGUST 2023**

DEPARTMENT OF CHEMISTRY
SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES
UNIVERSITY OF KERALA
Kariavattom, Thiruvananthapuram-695581


Dr. T. S. Anirudhan
Emeritus Professor




Email: tsani@rediffmail.com
Phone no: 9446684887

CERTIFICATE

This is to certify that the dissertation entitled "*Zein Grafted Pluronic -108 for the Effective Transdermal Delivery of Hydrophobic Curcumin and Hydrophilic 5-Fluorouracil for Cancer Therapy*" is a bonafide record of research work carried out by Ms. AJMI S JAVAD, under my supervision and guidance in partial fulfillment of the requirement for the award of **Master of Science Degree in Chemistry** of Mahatma Gandhi University.

Kariavattom
August 2023


Dr. T. S. Anirudhan
(Supervising Teacher)

Dr. Rami Alphonse Jose 
Dr. Sholly Clavis George 
Tony Francis 

CHARACTERISTICS STUDY OF A COMPLEX FERTILIZER

*A Dissertation Submitted to Mahatma Gandhi University in partial fulfilment of the Requirements for the
Degree of*

MASTER OF SCIENCE

Submitted by

AKSHAYA MURALIDHARAN

Register No : 210011009805



**PG DEPARTMENT OF CHEMISTRY
ALPHONSA COLLEGE PALA**

Under the supervision of

D.VIJAYAKUMAR

Deputy Manager (QA)

FACT

April 2023



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DGM (T&D) CERT-PW/05/2023-24

29.05.2023

CERTIFICATE

Certified that **Ms. AKSHAYA MURALIDHARAN**, student of M.Sc Chemistry in Alphonsa College, Pala has successfully completed her **Project Work** titled "**Characteristics Study of a Complex Fertilizes**" in FACT, Cochin Division during the period from 12.04.2023 to 11.05.2023.

We wish the student all the best in her future endeavors.

Abraham P Varghese
Project Coordinator



Antony K D
Engineer (Trg&Dev)



For FACT-UD QMS AND EMS
For FACT-CD-EMS
For REDO QMS
For FEW QMS



FOR FACT-CD QMS

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Regd. Office: Eloor, Udyogamandal

**A COMPARATIVE STUDY OF ELECTROCHEMICAL
PERFORMANCE OF ZINC-AIR BATTERY AND ALUMINIUM-AIR
BATTERY USING Ni-Mn BIMETALLIC MOF CATALYST**

A Dissertation submitted to Mahatma Gandhi University in partial fulfillment of the

Requirement for the Degree of

Master of Science

Submitted by

AMMU VIJAYAN

Register no: 210011009806



PG Department of chemistry

Alphonsa College, Pala

Under the supervision of

Dr. DITTY DIXON

Associate professor



School of Chemical Sciences

Mahatma Gandhi University

Kottayam – 686560, Kerala

AUGUST 2023



MAHATMA GANDHI UNIVERSITY, KOTTAYAM, KERALA -686560
POSTGRADUATE AND RESEARCH DEPARTMENT OF CHEMISTRY

CERTIFICATE

This is to certify that the project entitled "A comparative study of electrochemical performance of Zinc-air battery and Aluminum-air battery using (Ni)-Mn bimetallic MOF catalyst" is a bonafide work carried out by **AMMU VIJAYAN** (Reg no:210011009806) under my supervision and guidance for the partial fulfillment of the requirement for the award of Degree of Master of Science in Chemistry of Mahatma Gandhi University, Kottayam during the year 2021-2023. The work presented in this project has not been entirely submitted for any other degree before.

Dr.Ditty Dixon

Associate professor

School of Chemical Sciences

Mahatma Gandhi University

CHARACTERISTICS STUDY OF PHOSPHORIC ACID

A dissertation submitted to Mahatma Gandhi University in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE IN PURE CHEMISTRY

Submitted by

NAME: AMRUTHA M NAIR

REG NO: 210011009807

2021-2023



**PG DEPARTMENT OF CHEMISTRY
ALPHONSA COLLEGE, PALA**

Under the supervision of

Mr.D.Vijayakumar

Deputy Manager (QA)

**Fertilisers And Chemicals Travancore Limited.,
Ambalamedu, 682303, Kochi, Kerala**

May 2023



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DGM (T&D) CERT-PW/07/2023-24

29.05.2023

CERTIFICATE

Certified that **Ms. AMRUTHA M NAIR**, student of M.Sc Chemistry in Alphonsa College, Pala has successfully completed her **Project Work** titled "**Characteristics Study of Phosphoric Acid**" in FACT, Cochin Division during the period from 12.04.2023 to 11.05.2023.

We wish the student all the best in her future endeavors.

Abraham P Varghese
Project Coordinator



Antony K D
Engineer (Trg&Dev)



For FACT- UD QMS AND EMS
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For FEDO QMS
For FEW QMS



FOR FACT- CD QMS

पंजीकृत कार्यालय : एनूर, उद्योगमंडल
Regd. Office: Eloor, Udyogamandal

CHARACTERISTICS STUDY OF GYPSUM

A PROJECT REPORT

SUBMITTED BY

NAME : AMRUTHA R BOSE

REG NO : 210011009808

ALPHONSA COLLEGE PALA



SUBMITTED TO

MAHATMA GANDHI UNIVERSITY

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

MASTER OF SCIENCE

IN

PURE CHEMISTRY

ALPHONSA COLLEGE PALA

May, 2023

DECLARATION

I hereby declare that the work embodied in the project entitled "**CHARACTERISTICS STUDY OF GYPSUM**" is a bonafide report submitted for the partial fulfillment of the requirements for the award of MSc Chemistry in **Mahatma Gandhi University**. The project work has been carried out at Fertilisers and Chemicals Travancore Limited (FACT), Cochin division, Ambalamedu during 2023 under the guidance of **D.VIJAYAKUMAR**, Deputy Manager, **Quality assurance department at FACT**, Ambalamedu. I also declare that I have adhered to ethics of academic honesty and integrity and have not misrepresented or fabricated any data or idea in my submission.

Place: Pala

Date: 11/05/2023

Name :AMRUTHA R BOSE
ALPHONSA COLLEGE PALA

A COMPARATIVE STUDY OF ELECTROCHEMICAL
PERFORMANCE OF ZINC-AIR BATTERY AND
ALUMINIUM-AIR BATTERY USING (Ni)-Mn
BIMETALLIC MOF CATALYST

A Dissertation Submitted to Mahatma Gandhi University in partial fulfilment of the Requirements for
the Degree of

MASTER OF SCIENCE

Submitted by

Aswini V. V

Register no: 210011009810



PG DEPARTMENT OF CHEMISTRY

ALPHONSA COLLEGE PALA

Under the supervision of

Dr. DITTY DIXON

Associate professor



School of Chemical Sciences

Mahatma Gandhi University, Kottayam – 686560, Kerala



MAHATMA GANDHI UNIVERSITY, KOTTAYAM, KERALA -686560

POSTGRADUATE AND RESEARCH DEPARTMENT OF CHEMISTRY

CERTIFICATE

This is to certify that the project entitled "A comparative study of electrochemical performance of Zinc-air battery and Aluminum-air battery using (Ni)-Mn bimetallic MOF catalyst" is a Bonafide work carried out by ASWINI V V(Regno:210011009810) under my supervision and guidance for the partial fulfillment of the requirement for the award of Degree of Master of Science in Chemistry of Mahatma Gandhi University, Kottayam during the year 2021-2023. The work presented in this project has not been entirely submitted for any other degree before.

Dr.Ditty Dixon

Associate professor

School of Chemical Science

Mahatma Gandhi University

**SYNTHESIS OF LEAD FREE $\text{Cs}_2\text{CuBr}_2\text{Cl}_2$ PEROVSKITE : A
HIGHLY EFFICIENT SWITCH OFF SENSOR FOR THE
DETECTION OF NITROBENZENE**

*Dissertation Submitted to the Mahatma Gandhi University in partial fulfilment
of the requirements for the award of the Degree of Master of Science in
Chemistry*

Submitted by
ANAGHA RAMESH
(Reg.no.210011009809)



**PG Department of Chemistry
Alphonso College, Pala**

Under the supervision of
Dr. Sony George
Associate Professor



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SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES
UNIVERSITY OF KERALA, KARIAVATTOM CAMPUS,
THIRUVANANTHAPURAM**

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This is to certify that the dissertation entitled "*SYNTHESIS OF LEAD FREE $Cs_2CuBr_2Cl_2$ PEROVSKITE: A HIGHLY EFFICIENT SWITCH OFF SENSOR FOR THE DETECTION OF NITROBENZENE*" is a bonafide record of research work carried out by Ms. ANAGHA RAMESH , under my supervision and guidance in partial fulfilment of the requirement for the award of Master of Science Degree in Chemistry of Mahatma Gandhi University.

Kariavattom
August 2023

Dr. Sony George
(SupervisingTeacher)

**COMPUTATIONAL STUDY OF INHIBITION EFFICENCY
OF FLAVONOIDS AGAINST BREAST CANCER
PROTEIN RECEPTORS**

DISSERTATION

submitted to

MAHATMA GANDHI UNIVERSITY

Kottayam

In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE CHEMISTRY

Under the guidance of

Dr. ABI T.G

Assistant Professor,

Department of Chemistry

Sacred Heart College, Thevara

by

BASIMA ZIYANA A.S

(Reg No: 210011009811)



Department of Chemistry

Alphonsa College, Pala

2021-2023

CERTIFICATE FROM THE GUIDE

This is to certify that the Project Work Titled "COMPUTATIONAL STUDY OF INHIBITION EFFICENCY OF FLAVONOIDS AGAINST BREAST CANCER PROTEIN RECEPTORS " is a bonafeid work of Ms. BASIMA ZIYANA A.S carried out in partial fulfillment of the requirements for the award of the degree of M.Sc. Chemistry of Mahatma Gandhi University under my guidance. This project work is original and not submitted earlier for the award of any degree / diploma or assistantship of any other University/ Institution.

Place: Thevara

Date: 18/08/2023



Dr. ABI T.G.

Assistant Professor,

Department of Chemistry

Sacred Heart College, Thevara

Dr. ABI T. G.

Assistant Professor & Research Guide
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Sacred Heart College, (Autonomous)
Thevara, Kochi-682013

Synthesis of nanocellulose based biocomposite tailored with drug loaded nanoparticles for modern wound dressing development

Dissertation Submitted to the Mahatma Gandhi University in partial fulfilment of the requirements for the award of the Degree of Master of Science in Chemistry

Submitted by
DHANYA R KRISHNAN
(Reg.no.210011009812)



PG Department of Chemistry
Alphonsa College, Pala

Under the supervision of

Dr. T. S. Anirudhan
Emeritus Professor



DEPARTMENT OF CHEMISTRY
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THIRUVANANTHAPURAM
AUGUST 2023

DEPARTMENT OF CHEMISTRY
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This is to certify that the dissertation entitled "*Synthesis of nanocellulose based biocomposite tailored with drug loaded nanoparticles for modern wound dressing development*" is a bonafide record of research work carried out by Ms. **DHANYA R KRISHNAN**, under my supervision and guidance in partial fulfilment of the requirement for the award of **Master of Science Degree in Chemistry** of Mahatma Gandhi University.

Kariavattom
August 2023


Dr. T. S. Anirudhan
(Supervising Teacher)

Dr. Rami Alphonsa Jose 
Dr. Sholly Clair George 
Tony Francis 

CHARACTERISTICS STUDY OF ROCK PHOSPHATE

*A dissertation submitted to Mahatma Gandhi University in partial fulfilment of
the requirements for the degree of*

MASTER OF SCIENCE

Submitted by

GAYATHRI S

REG NO: 210011009813

2021-2023



PG DEPARTMENT OF CHEMISTRY

ALPHONSA COLLEGE PALA

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May 2023



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29.05.2023

CERTIFICATE

Certified that **Ms. GAYATHRI S**, student of M.Sc Chemistry in Alphonsa College, Pala has successfully completed her **Project Work** titled "**Characteristics Study of Rock Phosphate**" in FACT, Cochin Division during the period from 12.04.2023 to 11.05.2023.

We wish the student all the best in her future endeavors.

Abraham P Varghese
Project Coordinator



Antony K D
Engineer (Trg&Dev)



For FACT- UD QMS AND EMS
For FACT- CD EMS
For FEOD QMS
For FEW QMS



FOR FACT- CD QMS

पंजीकृत कार्यालय : एनूर, उद्योगमंडल
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Design, Synthesis and Characterization of Thiazolo[5,4-d]Thiazole Based Fully Conjugated Imine Linked Covalent Organic Polymer

A Dissertation Submitted to **Mahatma Gandhi University** in Partial
Fulfillment of the Requirement for the degree of

Master of Science in Chemistry

Submitted By

Gopika Madhu

Register number: 210011009814

Subject code: CH010404



PG Department of Chemistry

Alphonsa College, Pala

2021-2023



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CERTIFICATE

This is to certify that the dissertation entitled "*Design, Synthesis and Characterization of Thiazolo[5,4-d]Thiazole Based Fully Conjugated Imine Linked Covalent Organic Polymer*" is a bonafide record of research work carried out by Ms. Gopika Madhu under my supervision at Department of Chemistry, University of Kerala, Kariavattom (during April to May 2023) in partial fulfillment of the requirements for the award of Degree of Master of Science in Chemistry, University of Kerala.

Kariavattom
August 2023

Dr. Suneesh C. V.
(Supervising Guide)

Dr. Rami Alphonse
Dr. Shally Chais
Tony Francis
Jose
George
Dill

**DEVELOPMENT OF AN ANALYTICAL METHOD FOR THE
DETERMINATION OF DISSOLUTION AND ASSAY OF COMMERCIAL
AVAILABLE DRUG AMOXYCILLIN CAPSULE IP 500 MG**

PROJECT REPORT

*A dissertation Submitted to mahatma Gandhi university in the partial fulfilment Of the
Requirements for the award of the degree of*

Master of science in chemistry

Submitted by

LEKSHMI PRIYA

Register No. 210011009815



P G Department of Chemistry

Alphonsa College, Pala

Under the supervision and guidance of

Mrs.LINSHA K.HAMEED

Assistant Manager (QC)



Kerala State Drugs & Pharmaceutical Ltd.,

Kalavoor, Alappuzha -688522

July -2023.

KERALA STATE DRUGS AND PHARMACEUTICAL LIMITED



CERTIFICATE

This is to certify that the project work entitled — **DEVELOPMENT OF AN ANALYTICAL METHOD FOR THE DETERMINATION OF DISSOLUTION AND ASSAY OF COMMERCIAL AVAILABLE DRUG AN AMOXYCILLIN CAPSULE IP 500 mg** is the original work done by **Ms. LEKSHMI PRIYA**, under my supervision at the Department of Quality Control, KSDP LTD, Kalavoor, Alappuzha

Mrs.Linsha. K. Hameed

Assistant Manager (QC)

KSDP ,Kalavoor,Alappuzha

Alappuzha

May 2023

SYNTHESIS OF MnO_2 AND THEIR APPLICATION AS SUPERCAPACITOR

A Dissertation Submitted to **Mahatma Gandhi University** in Partial

Fulfillment of the Requirement for the degree of

Master of Science in Chemistry

Submitted By

NAIMIKA MOHAN

Register Number: 210011009816

Subject code: CH010404



PG Department of Chemistry

Alphonsa College, Pala

2021-2023

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This is to certify that the project report entitled "SYNTHESIS OF MnO_2 AND THEIR APPLICATION AS SUPERCAPACITOR" is a bonafied work carried out by **Naimika Mohan, 210011009816** under the guidance of **Dr.Nygil Thomas**, Assistant Professor, Department of Chemistry, Nirmalagiri College, Kuthuparamba.


Dr. Nygil Thomas

Signature of guide

Dr. Nygil Thomas
Assistant Professor
Department of Chemistry
Nirmalagiri College
Kuthuparamba - 670751, Kerala

**ANALYSIS OF AMLODIPINE TABLET IP 5 MG BY
PHARMACEUTICAL ASSAY AND DISSOLUTION**

A Dissertation submitted to Mahatma Gandhi University in partial fulfilment of the

Requirement for the Degree of

Master of Science

Submitted by

NINA T GEORGE

Register No: 210011009817



Department of Chemistry

Alphonso College, Pala

Under the supervision of

Mrs.LINSHA K .HAMEED

Assistant Manager (QC)



Kerala State Drugs & Pharmaceutical Ltd.

Kalavoor, Alappuzha -688522

July 2023

KERALA STATE DRUGS & PHARMACEUTICAL LTD



CERTIFICATE

This is to certify that this project entitled "**Analysis of Amlodipine Tablet by Pharmaceutical Assay and Dissolution**" is an authentic record of the work carried out by **Ms. NINA T .GEORGE** ,under the supervision in partial fulfilment for the degree of Master of Science in Chemistry and no part of this dissertation has been presented before any other degree.

Alappuzha

May 2023

A handwritten signature in blue ink, appearing to read 'L. Hameed', with a horizontal line underneath.

Mrs.Linsha k .Hameed

Assistant Manager of QC

KSDP,Kalavoor

Alappuzha

A Project Report On

**CALIBRATION AND ESTIMATION OF
CYCLOHEXANE FOR CAPROLACTAM
PROCESS USING GAS CHROMATOGRAPHY**

Submitted to

MG UNIVERSITY

In partial fulfillment of the requirement for the

Degree of Master Science in Chemistry

Submitted by

RUBY V

REG NO : 210011009818



ALPHONSA COLLEGE

PALAI, KOTTAYAM

Under Supervision Of

Sri.M.D.Sreekumar

Assistant Manager(QA) Designate

Work Done At

THE FERTILIZERS & CHEMICALS TRAVANCORE LTD(FACT)

PETROCHEMICAL DIVISION

MAY 2023



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DGM (T&D) CERT-PW/22/2023-24

04.09.2023

CERTIFICATE

Certified that **Ms. RUBY V**, student of M.Sc in Chemistry at Alphonsa College, Pala has successfully completed her **Project Work** titled "**Calibration and Estimation of Cyclohexane for Caprolactam Processing Using Gas Chromatography**" in FACT, Udyogamandal during the period from 02.05.2023 to 01.06.2023.

We wish the student all the best in her future endeavors.

Abraham P Varghese
Project Coordinator



Deepak T P
DM (Training)



For FACT-UD QMS AND EMS
For FACT-CD EMS
For FEOD QMS
For FEW QMS



FOR FACT-CD QMS

पंजीकृत कार्यालय : एलूर, उद्योगमंडल
Regd. Office : Eloor, Udyogamandal

**A STUDY OF SELECTION OF AGRICULTURAL WASTE AS LOW COST
ADSORBENT FOR REDUCTION OF TRACE PHENOL IN WATER**

Project report submitted to

MAHATHMA GANDHI UNIVERSITY, KOTTAYAM

In a partial fulfillment of the requirement for the award of the degree of

MASTER OF SCIENCE IN CHEMISTRY

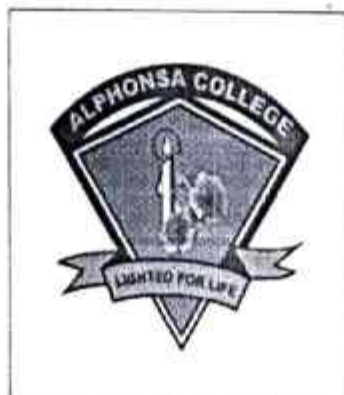
Work done at

HINDUSTAN ORGANIC CHEMICALS LIMITED

By

SAFEEDA S MUHAMMED

Register No: 210011009819



P.G Department of chemistry

Alphonsa College, Pala

2021-2023



हिन्दुस्तान ऑर्गेनिक केमिकल्स लिमिटेड HINDUSTAN ORGANIC CHEMICALS LIMITED

(भारत सरकार का उद्यम A Govt. of India Enterprise)

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An ISO 9001, 14001 & 45001 Unit

मानव संसाधन/प्रशिक्षण/प्रमाणपत्र/परियोजना/2023/10

HR/TRG/CERT-PROJ/2023/10

दिनांक DATE: 02.06.2023

प्रमाणपत्र CERTIFICATE

प्रमाणित किया जाता है कि सुश्री सफीदा एस मुहम्मद (रजि.नंबर: 210011009819), एम एस सी (केमिस्ट्री) छात्रा, अल्फॉन्सा कॉलेज, पाला ने 05.04.2023 से 20.04.2023 तक की अवधि के दौरान हमारे गुणता नियंत्रण विभाग में "ए स्टडि ऑन दी सेलेक्शन ऑफ अग्रिकल्चरल वेस्ट आस लो कोस्ट अड्सोरबेंट फॉर रिड्युक्शन ऑफ ट्रेस फिनोल इन वॉटर" विषय पर अपनी परियोजना कार्य संपन्न किया है।

Certified that Ms. SAFEEDA S MUHAMMED (Reg No.210011009819), M.Sc (Chemistry) student of Alphonsa College, Pala has done her Project work on "A STUDY ON THE SELECTION OF AGRICULTURAL WASTE AS LOW COST ADSORBENT FOR REDUCTION OF TRACE PHENOL IN WATER" in our Quality Control Department during the period from 05.04.2023 to 20.04.2023.

Dammio

(एम जे जगदीश M J JAGADEESH)

मुख्य महा प्रबन्धक (अभियांत्रिकी/एमएसएस/मानव संसाधन) & एफएम
CHIEF GENERAL MANAGER (Engineering/MSS/HR) & FM



निगमित कार्यालय : 4 वाँ तल, वी टाइम्स स्क्वायर, सेक्टर 15, सीबीडी बेलापुर, नवी मुंबई -400614

Corporate Office : 4th Floor, V Times Square, Sector 15, CBD Belapur, Navi Mumbai - 400 614

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**A COMPARATIVE STUDY OF ELECTROCHEMICAL
PERFORMANCE OF ZINC-AIR BATTERY AND
ALUMINIUM-AIR BATTERY USING (Ni)-Mn
BIMETTALLIC MOF CATALYST**

*A Dissertation Submitted to Mahatma Gandhi University in partial fulfilment of the Requirements for the
Degree of*

MASTER OF SCIENCE

Submitted by

SNEHA

Register no: 210011009820



**PG DEPARTMENT OF CHEMISTRY
ALPHONSA COLLEGE PALA**

Under the supervision of

Dr. DITTY DIXON

Associate professor



School of Chemical Sciences

Mahatma Gandhi University, Kottayam – 686560, Kerala

AUGUST 2023



MAHATMA GANDHI UNIVERSITY, KOTTAYAM, KERALA -686560
POSTGRADUATE AND RESEARCH DEPARTMENT OF CHEMISTRY

CERTIFICATE

This is to certify that the project entitled "**A comparative study of electrochemical performance of Zinc-air battery and Aluminum-air battery using (Ni)-Mn bimetallic MOF catalyst**" is a Bonafide work carried out by **SNEHA** (Regno:210011009820) under my supervision and guidance for the partial fulfillment of the requirement for the award of Degree of Master of Science in Chemistry of Mahatma Gandhi University, Kottayam during the year 2021-2023. The work presented in this project has not been entirely submitted for any other degree before.

Dr. Ditty Dixon

Associate professor

School of Chemical Sciences

Mahatma Gandhi University

SYNTHESIS AND CHARACTERIZATION OF FLUORENONE BASED SCHIFF BASE LIGANDS

*A Dissertation Submitted to Mahatma Gandhi University in Partial Fulfillment of the
Requirement for the Degree of*

MASTER OF SCIENCE

Submitted by

SREE NAVYA

Register Number: 210011009821



PG Department of Chemistry

Alphonsa College, Pala

Under the supervision of

Dr RENCHU SCARIA

Assistant Professor



Department of Chemistry

St Berchmans College, Changanassery

JULY 2023

DEPARTMENT OF CHEMISTRY

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St Berchmans College

AUTONOMOUS

Affiliated to Mahatma Gandhi University, Kottayam, Kerala

CERTIFICATE

This is to certify that the dissertation entitled **"SYNTHESIS AND CHARACTERIZATION OF FLUORENONE BASED SCHIFF BASE LIGANDS"** is an authentic record of the work carried out by **Ms. SREE NAVYA**, under my supervision in partial fulfillment for the degree of Master of Science in Chemistry and no part of this dissertation has been presented before for any other degree.

Place: Changanassery

Date: 31-07-2023

Dr. Renchu Scaria

Supervising Teacher

Dr. RENCHU SCARIA
Assistant Professor
Department of Chemistry
St. Berchmans College (Autonomous)
Changanassery, Pin: 686 101
Kottayam Dist., Kerala

**ANALYSIS OF CERTIRIZINE HYDROCHLORIDE TABLETS IP
10MG BY PHARMACEUTICAL ASSAY AND DISSOLUTION**

*A Dissertation Submitted to Mahatma Gandhi University in partial fulfilment of the Requirements
for the Degree of*

MASTER OF SCIENCE

Submitted by

SREEKALA NATH R

Register No : 210011009822

2021-2023



PG DEPARTMENT OF CHEMISTRY

ALPHONSA COLLEGE PALA

Under the supervision of

Mrs.LINSHA K .HAMEED

Assistant Manager (QC)



Kerala State Drugs & Pharmaceutical Ltd.

Kalavoor, Alappuzha -688522

July 2023

KERALA STATE DRUGS & PHARMACEUTICAL LTD



CERTIFICATE

This is to certify that the project work entitled- "ANALYSIS OF CETIRIZINE HYDROCHLORIDE TABLETS IP 10MG BY PHARMACEUTICAL ASSAY AND DISSOLUTION" is an authentic record of a study carried out by **Ms. Sreekala Nath R** under the supervision in partial fulfilment for the degree of Master of Science in Chemistry and no part of this dissertation has been presented before any other degree.

Place: Alappuzha

Date: 31.05.2023

A handwritten signature in blue ink, appearing to read 'Linsha.K. Hameed', is written over a horizontal line.

Mrs. Linsha.K. Hameed

Assistant Manager of QC

KSDP, Kalavoor, Alappuzha

CHARACTERISTICS STUDY OF PHOSPHORIC ACID

A PROJECT REPORT

SUBMITTED BY

NAME : SREELAKSHMI.H

REG NO : 210011009823

ALPHONSA COLLEGE PALA

SUBMITTED TO

MAHATMA GANDHI UNIVERSITY

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

MASTER OF SCIENCE

IN

PURE CHEMISTRY



PG department of Chemistry
ALPHONSA COLLEGE, PALA

APRIL, 2023



**P.G DEPARTMENT OF CHEMISTRY
ALPHONSA COLLEGE
(Affiliated to Mahatma Gandhi University)**

Arunapuram, Pala-686574, Kerala

CERTIFICATE

This is to certify that the project work entitled "CHARACTERISTICS STUDY OF PHOSFORIC ACID", which is submitted by Ms. SREELAKSHMI . H, for the award of degree of Master of science in Chemistry is a record of bonafide work done by her.

Mrs. Deepamol Varghese
HOD PG Department of Chemistry



REMOVAL OF PHENOL AND SULPHATE FROM EFFLUENT WATER

DISSERTATION

Submitted to

MAHATMA GANDHI UNIVERSITY

Kottayam

In Partial Fulfillment of the Requirement for the degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

SRUTHY SATHYAN

(Register No :210011009824)



Department of Chemistry

Alphonsa College, Pala

2021-2023



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 ई-मेल e-mail: kochu@hocindia.com
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आई एस ओ 9001: 2015 & 45001 प्रमाणित
 An ISO 9001: 2015 & 45001 CERT

मानव संसाधन/प्रशिक्षण/प्रमाणपत्र/परियोजना/2023/10

HR/TRG/CERT-PROJ/2023/10

दिनांक DATE: 02.06.2023

प्रमाणपत्र CERTIFICATE

प्रमाणित किया जाता है कि सुश्री श्रुती सत्यान(रजि.नंबर:210011009824), एम एस सी (केमिस्ट्री) छात्रा, अल्फोन्सा कॉलेज, पाला ने 05.04.2023 से 20.04.2023 तक की अवधि के दौरान हमारे गुणता नियंत्रण विभाग में "रिमूवल्स ऑफ फिनोल एंड सल्फेट फ्रम इफ्लुएंट वॉटर" विषय पर अपनी परियोजना कार्य संपन्न किया है।

Certified that Ms. SRUTHY SATHYAN (Reg No.210011009824), M.Sc (Chemistry) student of Alphonsa College, Pala has done her Project work on "REMOVAL OF PHENOL AND SULPHATE FROM EFFLUENT WATER" in our Quality Control Department during the period from 05.04.2023 to 20.04.2023.

(एम जे जगदीश M J JAGADEESH)

मुख्य महा प्रबन्धक (अभियांत्रिकी/एमएसएस/मानव संसाधन) & एफएम
 CHIEF GENERAL MANAGER (Engineering/MSS/HR) & FM



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**SYNTHESIS AND CHARACTERIZATION OF
TRYPTANTHRIN-HYDANTOIN CONJUGATES**

*A Dissertation submitted to Mahatma Gandhi University in partial fulfillment of the
Requirement for the Degree of*

Master of Science

Submitted by

SUKANYA K. P.

Register No: 210011009825



**Department of Chemistry
Alphonso College, Pala**

Under the supervision of

Dr. ANI DEEPTHI

Assistant Professor



**Department of Chemistry
University of Kerala, Kariavattom
Thiruvananthapuram- 695581**


JUNE 2023



PG DEPARTMENT OF CHEMISTRY
ALPHONSA COLLEGE
(Affiliated to Mahatma Gandhi University)
Arunapuram, Pala- 686574, Kerala

CERTIFICATE

This is to certify that the project work entitles "**Synthesis and Characterisation of Tryptanthrin-Hydantoin Conjugates**". Which is submitted by **Ms. SUKANYA K. P.**, for the award of Degree of Master of Science in Chemistry is a record of bonafide work done by her.


Mrs. Deepanof Varghese
Head of the Department
Alphonsa College, Pala



**COMPUTATIONAL SCREENING OF PHYTOCOMPOUNDS
FROM MORINGA OLEIFERA LEAF AS POTENTIAL
INHIBITORS OF COLORECTAL CANCER**

DISSERTATION

Submitted to

MAHATMA GANDHI UNIVERSITY

Kottayam

In partial fulfillment of requirements for the degree of
MASTER OF SCIENCE IN CHEMISTRY

Under the guidance of

Dr. ABI T.G

Assistant Professor,

Department of Chemistry

Sacred Heart College, Thevara

By,

ZAREERA A S

(Candidate code: 210011009826)



Department of Chemistry

Alphonsa College, Pala

2021-2023

CERTIFICATE FROM THE GUIDE

This is to certify that the Project Work Titled "**COMPUTATIONAL SCREENING OF PHYTOCOMPOUNDS FROM MORINGA OLEIFERA LEAF AS POTENTIAL INHIBITORS OF COLORECTAL CANCER**" is a bonafide work of Ms. ZAREERA A S carried out in partial fulfillment of the requirements for the award of the degree of M.Sc. Chemistry of Mahatma Gandhi University under my guidance. This project work is original and not submitted earlier for the award of any degree / diploma or assistantship of any other University/ Institution.

Place: Thevara

Date: 18/08/2023

Dr. ABI T.G

Assistant Professor,

Department of Chemistry

Sacred Heart College, Thevara

Dr. ABI T. G.
Assistant Professor & Research Guide
PG & Research Department of Chemistry
Sacred Heart College, (Autonomous)
Thevara, Kochi-682013