

**DEVELOPMENT OF PVA BASED HYDROGEL FOR WATER  
RECOVERY**

*Dissertation submitted to*

**UNIVERSITY OF KERALA**

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

**MASTER OF SCIENCE IN CHEMISTRY**

BY

**AKHIL CHANDRAN B G**

**Candidate code: 63521118001**

*Carried out at*



**VIKRAM SARABHAI SPACE CENTRE  
THIRUVANANTHAPURAM**



**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM, KERALA**

**JUNE 2023**

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P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Synthesis of PVA based hydrogel for water recovery --", by Akhil Chandran B G. was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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Mahatma Gandhi College  
Thiruvananthapuram**

# DEVELOPMENT AND EVALUATION OF IONIC LIQUID MODIFIED POLYVINYL ALCOHOL AND POLYVINYL PYRROLIDONE MEMBRANES

Submitted to



UNIVERSITY OF KERALA

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

**MASTER OF SCIENCE**

IN

**CHEMISTRY**

BY

**ANAGHA B**

(Reg. No. 63521118002)

**MAHATMA GANDHI COLLEGE THIRUVANANTHAPURAM**



*Under the guidance of*

**Dr. M.J. ROSEMARY**

Scientist E3

Corporate R&D Centre

HLL Life Care Ltd., Akkulam, Thiruvananthapuram

A blue ink signature of the Head of the P.G. Dept. of Chemistry &amp; Research Centre, Mahatma Gandhi College.

HEAD

P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College

A blue ink signature of Anagha B, the student, with the date '19/09/2022' written below it.

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Development and evaluation of ionic liquid modified polyvinyl alcohol and polyvinyl pyrrolidone membranes " , by Anagha B. was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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Mahatma Gandhi College  
Thiruvananthapuram**

**SYNTHESIS AND CHARACTERIZATION OF POLYIMIDES BY ONE-  
STEP TECHNIQUE**

**A PROJECT REPORT SUBMITTED TO THE  
UNIVERSITY OF KERALA**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR**

**THE AWARD OF THE DEGREE OF**

**MASTER OF SCIENCE IN CHEMISTRY**

**BY**

**ANJALI S. KUMAR**

**(CANDIDATE CODE: 63521118003)**



**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM – 695004**




**Carried out at**

**ANALYTICAL AND SPECTROSCOPY DIVISION  
PROPELLANTS, POLYMERS, CHEMICALS, AND MATERIAL ENTITY**

**VIKRAM SARABHAI SPACE CENTRE**

**THIRUVANANTHAPURAM – 695022**

**JUNE 2023**

  
P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Synthesis and characterisation of polyimides by one step technique , by Anjali S Kumar. was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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Mahatma Gandhi College  
Thiruvananthapuram**

**A COMPARITIVE STUDY OF PHYSICOCHEMICAL  
PROPERTIES OF METAL DOPED CARBON QUANTUM DOTS  
SYNTHESIZED USING DIFFERENT METAL ACETATES**



*Dissertation submitted to*

**UNIVERSITY OF KERALA**

*In partial fulfilment of the requirements for the award of Degree of*

**MASTER OF SCIENCE**

**IN**

**CHEMISTRY**

**BY**

**ANJANA.A**

Candidate code:63521118004

*Under the guidance of*

**Dr. Jobin Cyriac**

**Professor, IIST**



**DEPARTMENT OF CHEMISTRY**

**MAHATMA GANDHI COLLEGE**

**THIRUVANANTHAPURAM**

**KERALA**

**AUGUST 2023**



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**DEPARTMENT OF CHEMISTRY  
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THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- A comparative study of the physicochemical properties of metal doped carbon quantum dot synthesised using different metal acetate --", by Anjana A. was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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# GRAPHITIC CARBON NITRIDE BASED HETEROGENEOUS DUAL-METAL SINGLE-ATOM CATALYST FOR THE SELECTIVE OXIDATION OF SILANES

A Project Report submitted to

UNIVERSITY OF KERALA

In partial fulfillment for the Award of the Degree of Master of Science in  
Chemistry

By

ANJITHA K S

Reg. No. 63521118005



DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM

Under the guidance of

Dr. T.P.D. RAJAN



HEAD  
P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram

*[Signature]*  
19/09/2023

MATERIALS SCIENCE AND TECHNOLOGY DIVISION  
NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND  
TECHNOLOGY, CSIR THIRUVANANTHAPURAM – 695019

July 2023

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Graphitic carbon nitride based heterogeneous dual metal single atom catalyst for the selective oxidation of silanes -" , by Anjitha K.S. was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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Mahatma Gandhi College  
Thiruvananthapuram**

**ESTIMATION OF PERCHLORATE ION BY ION  
SELECTIVE ELECTRODE (ISE): PARAMETRIC STUDY  
AND FABRICATION OF SPACE-GRADE ISE**

*Dissertation submitted to*

**UNIVERSITY OF KERALA**

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

**MASTER OF SCIENCE IN CHEMISTRY**

BY

**DEVIKA SURESH**

**Candidate code: 63521118006**

*Carried out at*



**VIKRAM SARABHAI SPACE CENTRE  
THIRUVANANTHAPURAM**



**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM, KERALA**

**JULY 2023**

*Devika Suresh*  
19/09/20

*[Signature]*

**HEAD**

**P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**

**DEPARTMENT OF CHEMISTRY  
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THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Estimation of perchlorate ion by ion selective electrode (ISE); Parametric study and fabrication of space grade ISE, by Devika Suresh was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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Mahatma Gandhi College  
Thiruvananthapuram

# SELECTIVE METHYLENE BLUE TRANSPORT THROUGH POLYELECTROLYTE MULTILAYER MEMBRANES

Submitted to



**UNIVERSITY OF KERALA**

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

MASTER OF SCIENCE *in* CHEMISTRY

By

**DIVYA DILISH**

(Reg. No. 63521118007)

**Mahatma Gandhi College,  
Kesavadasapuram, Thiruvananthapuram**




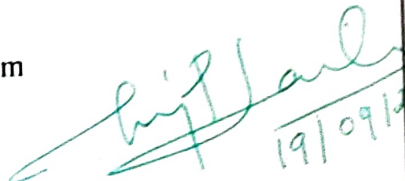
*Under the guidance of*

**Dr. M.S BABURAJ**

**Research Scientist**

Corporate R&D center (CRDC)  
HLL Lifecare Ltd., Akkulam, Thiruvananthapuram

  
**HEAD**  
P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram

  
19/09/12

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Selective methylene blue transport through polyelectrolyte multilayer membranes -" , by Divya Dileesh was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram

UNIVERSITY OF MADRAS  
UNIVERSITY OF MADRAS

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

MASTERS IN CHEMISTRY

in

CHEMISTRY

BY

**GEETHU G (63521118008)**

Under the Guidance of

**Dr. K Y SANDHYA**

(1301) Department of Chemistry, Indian Institute of Space Science and Technology,  
Thiruvananthapuram



**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM  
JULY 2023**

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Thiruvananthapuram**

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"—simultaneous sensing of " Pb(I) and Cu(II) ions by ZIF67" by GEETHU G was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**



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**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Synthesis of Cu doped ZnO@ZIF 67 and it's electrochemical sensing applications -" , by Kavya M.K was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**

**SOFT TEMPLATE ASSISTED SYNTHESIS AND  
CHARACTERISATION OF CARBON AEROGELS FOR  
REGENERATIVE REMOVAL OF CO<sub>2</sub>**

**PROJECT REPORT  
SUBMITTED TO THE UNIVERSITY OF KERALA IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT OF  
MASTER OF SCIENCE IN CHEMISTRY**

**BY  
MEENAKSHLS  
Reg. No: 63521118011**



**MAHATMA GANDHI COLLEGE THIRUVANANTHAPURAM**

**CARRIED OUT AT  
ANALYTICAL AND SPECTROSCOPY DIVISION  
ANALYTICAL, SPECTROSCOPY AND CERAMICS GROUP  
VIKRAM SARABHAI SPACE CENTRE**

**JUNE 2023**

**HEAD  
P.S. Dept of Chemistry & Research C  
Mahatma Gandhi College  
Thiruvananthapuram**

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Soft template assisted synthesis and characterisation of " , by Meenakshi S was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**

**COMPUTATIONAL STUDY OF HIGH ENERGY**  
**MATERIAL 5- GUANYL TETRAZOLE**

*Dissertation submitted to*

**UNIVERSITY OF KERALA**

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

**MASTER OF SCIENCE IN CHEMISTRY**

BY

**PARVATHY JAYAN J**

**Candidate code: 63521118012**

*Carried out at*



**VIKRAM SARABHAI SPACE CENTRE**

**THIRUVANANTHAPURAM**



**DEPARTMENT OF CHEMISTRY**

**MAHATMA GANDHI COLLEGE,**

**THIRUVANANTHAPURAM,**

**KERALA, INDIA**

July 2023

**HEAD**  
**P.G. Dept. of Chemistry & Research Centre**  
**Mahatma Gandhi College**  
**Thiruvananthapuram**

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Computational study of high energy material 5-guanyl tetrazole " , by Parvathy Jayan J was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



**HOD  
HEAD  
R.C. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram**

**EFFECT OF PROCESSING PARAMETER ON  
MICROENCAPSULATION OF PARAFFIN FOR  
THERMAL ENERGY STORAGE**

A Dissertation Submitted to  
University of Kerala in partial fulfillment of the requirements  
for the Award of Master of Science in Chemistry

By

**PRAVEENA V P**

(Candidate Code: 63521118013)

Carried out at



Analytical and Spectroscopy Division  
Analytical, Spectroscopy and Ceramic Group  
Propellants, Polymers, Chemicals and Material Entity  
Vikram Sarabhai Space Centre  
Thiruvananthapuram



**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE  
THIRUVANANTHAPURAM  
JULY 2023**

**HEAD**  
P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College  
Thiruvananthapuram

**DEPARTMENT OF CHEMISTRY  
MAHATMA GANDHI COLLEGE,  
THIRUVANANTHAPURAM**

**PROJECT COMPLETION CERTIFICATE**

This is to certify that the project entitled"-- Effect of processing parameter on microencapsulation of paraffin for thermal energy storage " , by Praveena V.P was submitted in partial fulfilment of the requirement for the award of degree of Master of Science during the academic year 2022-23..



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HEAD  
P.G. Dept. of Chemistry & Research Centre  
Mahatma Gandhi College**

**SYNTHESIS OF Cu Doped ZnO@ZIF-67 AND ITS  
ELECTROCHEMICAL SENSING APPLICATIONS**

*Dissertation submitted to*

**UNIVERSITY OF KERALA**

*In partial fulfilment of the requirements for the award of Degree of*

**MASTER OF SCIENCE**

**IN**

**CHEMISTRY**

**BY**

**KAVYA M K (63521118010)**

Under the Guidance of

**Dr. K Y SANDHYA**

(HOD, Department of Chemistry, Indian Institute of Space Science and Technology,  
Thiruvananthapuram)




**DEPARTMENT OF CHEMISTRY**

**MAHATMA GANDHI COLLEGE**

**KESAVADASAPURAM, PATTOM. P O.,  
TRIVANDRUM – 695 004, KERALA, INDIA**

**JULY 2023**

  
**HEAD**  
**P.G. Dept. of Chemistry & Research Centre**  
**Mahatma Gandhi College**  
**Thiruvananthapuram**