

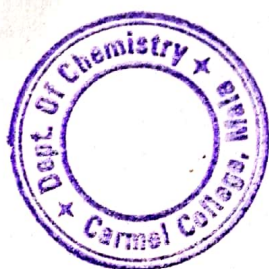
**“DEVELOPMENT OF Ce-Cu ELECTROCATALIST ON  
GRAPHENE-VULCAN SUPPORT FOR ALKALINE  
ELECTROLYTE CELL”**

A dissertation submitted to University of Calicut  
In partial fulfillment of the requirement for the Degree of  
**MASTERS OF SCIENCE IN CHEMISTRY**

Submitted by  
**K P ANNET**  
(CRATMCH007)  
2019 – 2021



**PG DEPARTMENT OF CHEMISTRY  
CARMEL COLLEGE, MALA  
THRISSUR**



*Princy K.G.*  
Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA

# THE USE OF LIQUID AND SUPERCRITICAL CARBONDIOXIDE AS A GREEN SOLVENT IN PHARMACEUTICAL INDUSTRY

A dissertation submitted to University of Calicut

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

**MASTER OF SCIENCE**

**In**

**CHEMISTRY**

Submitted By

**ASWATHI P**

**CRATMCH001**



**PG DEPARTMENT OF CHEMISTRY**

**CARMEL COLLEGE, MALA**

**THRISSUR, KERALA**

**2019-2021**



*Princy K.G.*

**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**

**ENHANCED MECHANICAL PROPERTY  
OF THE STARCH – SISAL FIBER  
COMPOSITE**

A dissertation submitted to University of Calicut

In partial fulfillment of the requirement for the award

Of degree of

**MASTER OF SCIENCE**

In

**CHEMISTRY**

Submitted by

**CHANGEL ANTO**

**(CRATMCH002)**



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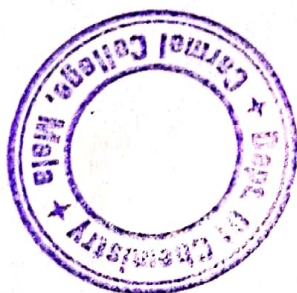
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*Princy K.G.*

**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**



# WATER DIFFUSION CHARACTERISTICS OF CELLULOSE NANOFIBER REINFORCED PHENOL FORMALDEHYDE NANOCOMPOSITE

A dissertation submitted to University of Calicut

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

MASTER OF SCIENCE

In

CHEMISTRY

Submitted by

DELMA WILSON

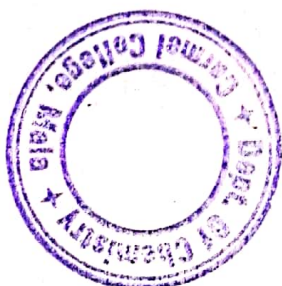
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Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA



# PHENOL – FORMALDEHYDE -MWCNT-IL FOAMS PREPARATION AND CHARACTERISATION

A dissertation submitted to University of Calicut  
In partial fulfillment of the requirement for the award

Of degree of  
MASTER OF SCIENCE

IN  
CHEMISTRY

Submitted by  
DONA DEVASSYKUTTY  
(CRATMCH004)



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CARMEL COLLEGE  
MALA , THRISSUR  
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*Princy K.G.*

Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA

**PREPERATION OF REGENERATED CELLULOSE  
FILM FROM SPONGE GOURD (LUFFA  
AEGYPTIACA) AND EVALUATION OF PROPERTIES**

**A dissertation submitted to University of Calicut  
In partial fulfillment of the requirement for the award of degree  
of MASTER OF SCIENCE**

**In  
CHEMISTRY**



**Submitted by,  
FASNA K U  
(CRATMCH005)  
2019-2021**

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MALA, THRISSUR**

EXAMINERS: 1)



*Princy K.G.*  
**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**

# PREPARATION AND PROPERTIES OF PHENOL FORMALDEHYDE-NANOSILICA FOAM

A dissertation submitted to University of Calicut  
in partial fulfillment of the requirement for the award of degree of  
**MASTER OF SCIENCE**

In

**CHEMISTRY**

Submitted by

**GILDA THOMAS**

**(CRATMCH006)**

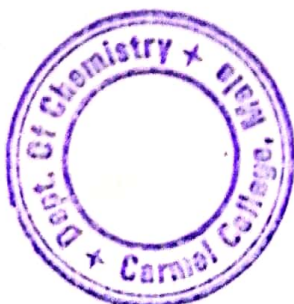


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**ASSOCIATE PROFESSOR & HEAD**  
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**SYNTHESIS OF ZINC OXIDE NANOPARTICLES -  
A GREEN APPROACH, PHOTO CATALYTIC  
ACTIVITY AND EFFECT OF CONCENTRATION OF  
CATALYST**

A dissertation submitted to University of Calicut  
in partial fulfillment of the requirement for the award of degree of

MASTER OF SCIENCE

in

CHEMISTRY

Submitted

LAKSHMI RAMESAN



(CRATMCH008)

PG DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE

MALA, THRISSUR

2019-2021

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*Princy K.G.*

**Dr. PRINCY K.G.**  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA



**“DENDRITE FREE RECHARGEABLE ZINC-AIR  
BATTERIES FOR ELECTRICAL ENERGY STORAGE”**

**A dissertation submitted to University of Calicut**

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

**MASTER OF SCIENCE**

**IN**

**CHEMISTRY**

**Submitted by**

**LEYA MARY ANTO**

**(CRATMCH009)**

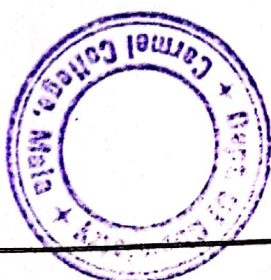


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**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
**CARMEL COLLEGE, MALA**

**ELECTRICAL PROPERTIES OF  
STARCH-PVA BLEND**

**A dissertation submitted to University of Calicut**

**in partial fulfillment of the requirement for the award of degree**

**of**

**MASTER OF SCIENCE**

**in**

**CHEMISTRY**

**Submitted by**

**LIVIYA JOSE**

**(CRATMCH010)**

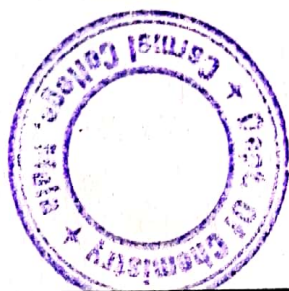


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**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**

# **STUDIES ON THE GREEN SYNTHESIS, CHARACTERISATION AND ANTICANCER PROPERTY OF RUTHENIUM NANOPARTICLES**

**A dissertation submitted to University of Calicut**

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

**MASTER OF SCIENCE**

**In**

**CHEMISTRY**

**Submitted By**

**MARIYA.P.KAMAL**

**CRATMCH011**



**PG DEPARTMENT OF CHEMISTRY**

**CARMEL COLLEGE, MALA**

**THRISSUR, KERALA**

**2019-2021**



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**Dr. PRINCY K.G.**  
**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
**CARMEL COLLEGE, MALA**



**GREEN- ROUTE SYNTHESIS OF ZnO NANOPARTICLES  
USING SEED GEL OF LINUM USITATISSIMUM,  
CHARECTERISATION AND PHOTODEGRADATION  
STUDIES.**

**A dissertation submitted to University of Calicut  
in partial fulfillment of the requirement for the award of degree of  
MASTER OF SCIENCE**

**in**

**CHEMISTRY**

**Submitted by**

**PRABITHA PP**

**(CRATMCH012)**

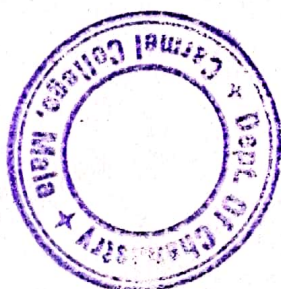


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**Dr. PRINCY K.G.**  
**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
**CARMEL COLLEGE, MALA**



**“DEVELOPMENT AND STUDY OF PALLADIUM  
CATALYST ON GRAPHENE- VULCAN SUPPORT IN  
ALKALINE FUEL CELL”**

A dissertation submitted to University of Calicut in partial fulfilment of the  
requirement for the award of degree of

**MASTER OF SCIENCE**

**IN**

**CHEMISTRY**

Submitted by

**SILVIYA RAMACHANDRAN**

**(CRATMCH013)**

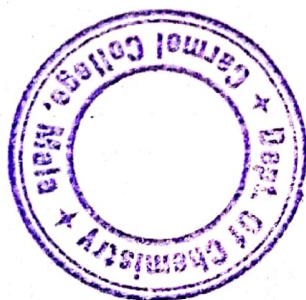
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**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**

**“DEVELOPMENT OF ELECTROCATALYST FOR HYDROGEN  
EVOLUTION IN ALKALINE MEDIUM ”**

**A dissertation submitted to University of Calicut**

**in partial fulfillment of the requirement for the award of degree of**

**MASTER OF SCIENCE**

**IN**

**CHEMISTRY**

**Submitted by,**

**SILVY K.V**

**(CRATMCH014)**



**PG DEPARTMENT OF CHEMISTRY**

**CARMEL COLLEGE, MALA**

**THRISSUR**

**2019-2021**



*Princy K.G.*

**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA**

# **THERMAL BEHAVIOUR OF CELLULOSE NANOFIBER REINFORCED STARCH FILMS**

**A dissertation submitted to University of Calicut  
in partial fulfillment of the requirement for the award of degree of  
MASTER OF SCIENCE**

**IN  
CHEMISTRY  
Submitted by  
THERESA ROSE  
(CRATMCH015)**



**PG DEPARTMENT OF CHEMISTRY  
CARMEL COLLEGE,  
MALA, THRISSUR  
2019-2021**



*Princy K.G.R.*  
**Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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### CERTIFICATE

This is to certify that the report of the project entitled  
**“The Use of Liquid and Supercritical Carbondioxide as a  
Green Solvent in Pharmaceutical Industry ”** is a bonafide record  
of the work carried out by **ASWATHI P (RegNo. CRATMCH001)** under the  
supervision and guidance of **Dr.P. Raveendran Professor, Department of  
Chemistry, University of Calicut** towards the partial fulfilment of  
requirement for the award of the degree of Master of Science in Chemistry at  
University of Calicut during the academic year 2019-2021.

Mala

31/08/2021

*Poiny K. G.*

Head of the Department



DR. POINY K.G.  
ASSOCIATE PROFESSOR & HEAD,  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA





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### CERTIFICATE

This is to certify that the report of the project entitled **“Enhanced Mechanical Property Of The Starch –Sisal Fiber Composite”** is a bonafide record of the work carried out by **CHANGEL ANTO** (RegNo. CRATMCH002) under the supervision and guidance of **Dr.Sreekala M.S, Assistant Professor, Department of Chemistry Sreesankara College, Kalady** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at University of Calicut during the academic year 2019-2021.

Mala

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*Princy K. G.*

Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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This is to certify that the report of the project entitled "Water Diffusion Characteristics of Cellulose Nanofiber Reinforced Phenol Formaldehyde Nanocomposite" is a bonafide record of the work carried out by **DELMA WILSON (RegNo. CRATMCH003)** under the supervision and guidance of **Dr.Sreekala M.S, Assistant Professor, Department of Chemistry, Sreesankara College, Kalady** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at Sreesankara College, Kalady during the academic year 2019-2021.

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Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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**“Phenol-Formaldehyde-MWCNT-ILFoams preparation and  
Characterisation”** is a bonafide record of the work carried out by **DONA  
DEVASSYKUTTY (RegNo. CRATMCH004)** under the supervision and  
guidance of **Dr.Sreekala M.S, Assistant Professor, Department of Chemistry  
Sreesankara College, Kalady** towards the partial fulfilment of requirement for the  
award of the degree of Master of Science in Chemistry at University of Calicut  
during the academic year 2019-2021.

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*Princy K.G.P*

Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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This is to certify that the report of the project entitled **“Preperation of regenerated Cellulose Film from Sponge Gourd (Luffa Aegyptiaca) and evaluation of properties”** is a bonafide record of the work carried out by **FASNA K.U(RegNo. CRATMCH005)** under the supervision and guidance of **Dr. Nisha Nandakumar, Department of Chemistry, S.V.N.S.S College, Wadakkanchery** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at S.V.N.S.S College , Wadakkanchery during the academic year 2019-2021.

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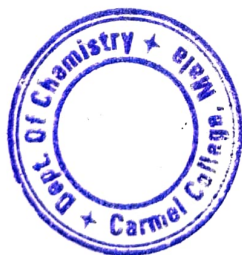
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Mala

31/08/2021

Head of the Department



**Dr. PRINCY K.G.**  
**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
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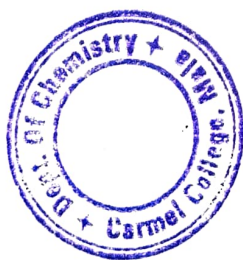
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**“Development of Ce-Cu Electrocatalyst on Graphene-Vulcan  
support for Alkaline Electrolyte Cell”** is a bonafide record of the work  
carried out by **K P ANNET (RegNo. CRATMCH007)** under the supervision and  
guidance of **Dr.JOY V T, Department of Chemistry,Christ College,  
Irinjalakuda**, towards the partial fulfilment of requirement for the award of the  
degree of Master of Science in Chemistry at Christ College, Irinjalakuda during the  
academic year 2019-2021.

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31/08/2021

Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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This is to certify that the report of the project entitled  
**“Synthesis of Zinc oxide Nano particles-A green approach,  
Photo catalytic activity and Effect of concentration of  
catalyst”** is a bonafide record of the work carried out by **LAKSHMI  
RAMESAN** (RegNo. CRATMCH008) under the supervision and guidance of  
**Ms.Tessy Jose, Department of Chemistry, Carmel College, Mala** towards  
the partial fulfilment of requirement for the award of the degree of Master of Science  
in Chemistry at Carmel College, Mala during the academic year 2019-2021.

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*Princy K.G.*  
Head of the Department



**Dr. PRINCY K.G.**  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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*Princy K.G.*

Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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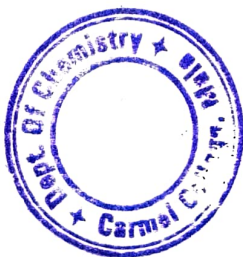
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31/08/2021

*Princy K.G.*

Head of the Department



**Dr. PRINCY K.G.**  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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This is to certify that the report of the project entitled **“Green Route synthesis of Zinc Oxide Nano particles using Linum Usitatissimum, Characterization and Photodegradation studies”** is a bonafide record of the work carried out by **PRABITHA P.P (RegNo. CRATMCH012)** under the supervision and guidance of **Ms.Tessy Jose, Department of Chemistry, Carmel College, Mala** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at Carmel College, Mala during the academic year 2019-2021.

Mala

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*Princy K.G.*

Head of the Department



**Dr. PRINCY K.G.**  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
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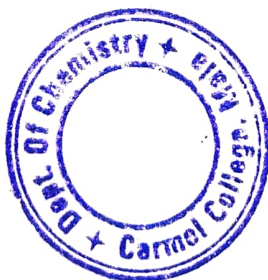
This is to certify that the report of the project entitled **“Development and Study of Palladium Catalyst on Graphene-Vulcan support in Alkaline Fuel cell”** is a bonafide record of the work carried out by **SILVIYA RAMACHANDRAN (RegNo. CRATMCH013)** under the supervision and guidance of **Dr.JOY V T, Department of Chemistry, Christ College, Irinjalakuda,** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at Christ College, Irinjalakuda during the academic year 2019-2021.

Mala

31/08/2021

*Princy K. G. R.*

Head of the Department



Dr. PRINCY K.G.  
ASSOCIATE PROFESSOR & HEAD  
DEPT. OF CHEMISTRY  
CARMEL COLLEGE, MALA





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This is to certify that the report of the project entitled **“Development of Electrocatalyst for Hydrogen evolution in alkaline medium”** is a bonafide record of the work carried out by **SILVY K.V (RegNo. CRATMCH014)** under the supervision and guidance of **Dr.JOY V.T,Department of Chemistry, Christ College, Irinjalakuda** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at Christ College, Irinjalakuda during the academic year 2019-2021.

Mala

31/08/2021

Head of the Department



**Dr. PRINCY K.G.**  
**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
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### CERTIFICATE

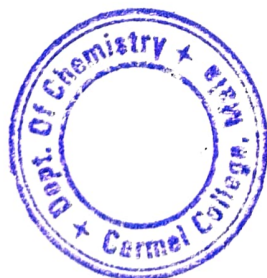
This is to certify that the report of the project entitled **“Thermal behaviour of Cellulose Nano fiber reinforced Starch films”** is a bonafide record of the work carried out by **THERESA ROSE (RegNo. CRATMCH015)** under the supervision and guidance of **Dr.Sreekala M.S, Assistant Professor, Department of Chemistry, Sreesankara College, Kalady** towards the partial fulfilment of requirement for the award of the degree of Master of Science in Chemistry at Sreesankara College, Kalady during the academic year 2019-2021.

Mala

31/08/2021

*Princy K.G.*

Head of the Department



**Dr. PRINCY K.G.**  
**ASSOCIATE PROFESSOR & HEAD**  
**DEPT. OF CHEMISTRY**  
**CARMEL COLLEGE, MALA**