Department : Chemistry		
Academic Year : 2023-24		
Sr. No.	**Programme Code**	**Name of the Programme**
01.	1764	M. Sc. Chemistry

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अध्यक्ष/Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

Signature and Seal of the Head

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

A Project

On

REMEDIATION OF DYES USING PHYTODERIVED BIOCHAR FROM CAROB TREE SEEDS

Master of Science IV Semester

Session 2023-24

SUPERVISED BY

Dr. SUNIL KUMAR SINGH

(ASSOCIATE PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

AAKANKSHA PATEL

M.Sc. 4th Sem

ROLL NO. - 22104101

04/09/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

CERTIFICATE OF THE GUIDE

This is to certify that **AAKANKSHA PATEL** has carried out this experiment under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "REMEDIATION OF DYES USING PHYTODERIVED BIOCHAR FROM CAROB TREE SEEDS"

She has worked diligently, and methodically and also collected the literature very sincerely and carefully. During this project work, she has learnt about adsorption process.

To the best of our knowledge, the work presented in this project is original and has not been submitted anywhere. I recommend the project report be forward to the respective examiners for evaluation. I wish her every success in her career and life.

(Signature of Guide)

Dr. SUNIL KUMAR SINGH

ASSOCIATE PROFESSOR

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

AAKANKSHA PATEL

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that the project work entitled "REMEDIATION OF DYES USING PHYTODERIVED BIOCHAR FROM CAROB TREE SEEDS" submitted by this project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in his life.

(Signature of H.O.D)

HEAD / Head
DEPARTMENT OF CHEMISTRY
Dept. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

(Signature of Student)

AAKANKSHA PATEL

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"PRODUCTION OF BIODIESEL FROM ALGAE"

Master of Science IV Semester (chemistry)

Session: 2023 – 2024

SUBMITTED TO

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

SUBMITTED BY

AAYUSH VIPIN SAHU

M.Sc. IV SEMESTER

ROLL NO. 22104103

ENR. NO. GGV/22/07203

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "production of biodiesel from algae" submitted by, this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

(Signature of H.O.D.)

HEAD OF DEPARTMENT
(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

AAYUSH VIPIN SAHU

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DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"SYNTHESES AND CHARACTERIZATION OF BIMETALIC AND HETEROBIMETALIC COMPLEXES"

Master of Science IV Semester

Session: 2022 – 2024

SUPERVISOR

Dr. SURYABHAN SINGH

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

ABHIMANYU GUHA

M.Sc. IV SEMESTER

ROLL NO.22104104

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled **"SYNTHESIS AND CHARACTERIZATION OF BIMETALIC AND HETEROBIMETALIC COMPLEXES"** Submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish his every success in her life.

Prof. G. K. PATRA

HEAD OF DEPARTMENT

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

TABLE OF CONTENTS

Guru Ghasidas Vishwavidyalaya

(A Central University)

Bilaspur, Chhattisgarh

A

Literature Based Project Report

On

"Electrochemical sensors for the detection of Arsenic"

As Partial Fulfilment for the Degree of M.Sc. in

ChemistryFor Session 2023-2024

Guided By

Dr. Uday Pratap Azad
Assistant Professor
Guru Ghasidas Vishwavidyalaya

Submitted By

Allen Joban
M.Sc. 4th Semester
Roll No.: 22104105

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

(A Central University Established by Central University Act 2009 No. 25 of 2009)

Forwarding Certificate

This is to certify that Mr. Allen Joban has carried out a project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Electrochemical sensors for the detection of Arsenic". This project is Submitted asa partial fulfillment for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.

Prof. Goutam Kumar Patra
Head of Department,
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, C.G.(छ.ग.)

CONTENT

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"SYNTHESIS AND CHARACTERIZATION OF MgO NANOPARTICLES EXTRACTED FROM NEEM LEAVES BY GREEN METHOD"

Master of Science IV Semester

Session: 2023 – 2024

SUBMITTED TO

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

ANURADHA BARAD

M.Sc. IV SEMESTER

ROLL NO. 22104106

ENR.NO. GGV/22/07206

AS 04/09/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "SYNTHESIS AND CHARACTERIZATION OF MAGNESIUM OXIDE NANOPARTICLES EXTRACTED FROM NEEM LEAVES BY GREEN METHOD" is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

04-09-24

(Signature of H.O.D.)

Dr. G.K. PATRA

HEAD

(DEPARTMENT OF CHEMISTRY)

Anuradha Barad

(Signature of Student)

ANURADHA BARAD

TABLE OF CONTENTS

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "Photocatalytical degradation of organic compounds" Submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

(Signature of H.O.D.)

Dr. G.K. PATRA

HEAD / HEAD

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

ARCHANA MINJ

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

CERTIFICATE OF THE GUIDE

This is to Certify that ARCHANA MINJ has carried out this literature-based survey under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "Photocatalytical degradation of organic compounds." She has worked diligently, and methodically and also collected the literature very sincerely and carefully. During this project work, she has learnt about variousorganic transformations.

To the best of our knowledge, the work presented in this project is original and has not been submitted anywhere. I recommend the project report be forwarded to the respective examiners for evaluation. I wish her every success in her career and life.

(Signature of Guide)

Dr. MANORAMA

(PROFESSOR)

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

ARCHANA MINJ

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"Photocatalytical degradation of organic compounds"

Master of Science IV Semester

Session: 2022 – 2024

SUBMITTED TO

Dr. MANORAMA

(PROFESSOR)

DEPARTMENT OF CHEMISTRY

SUBMITTED BY

ARCHANA MINJ

M.Sc. IV SEMESTER

ROLL NO. 22104107

Synthesis & Characterization Of Carboxymethyle Cellulose(CMC) Wrapped Cuo Nanoparticles Via Chemical Precipitation Method

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur

(C.G.)

In Partial Fulfilment for the Award of the Degree

Of

Master of Science in Chemistry

By

ASHISH KHUTE

Under the Guidance of

Dr. Arti Srivastava, Associate professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

SESSION 2022 – 2024

DECLARATION BY THE CANDIDATE

I the undersigned solemnly declare that the report of the major project entitled "Synthesis & Characterization of Carboxymethyle Cellulose (CMC) Wrapped CuO Nanoparticles Via Chemical Precipitation Method" based on my work carried out during my study in the Department of Chemistry, Guru, Ghasidas, Vishwavidyalaya, Bilaspur under the supervision of **Dr. Arti Srivastava**. I assert that the statements made and conclusions drawn are an outcome of my research work.

Signature of the Candidate

Ashish Khute

Roll No.: 22104108

Enrolment No.: GGV/19/7041

Signature of the Supervisor

Dr. Arti Srivastava

Associate Professor

Department of chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur - 495009

Date: 04/09/2024

Place : Bilaspur C.G.

FORWARDING CERTIFICATE

This is to certify that **Mr. Ashish Khute** has carried out this research-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, (C.G.) on the topic **"Synthesis & Characterization Of Carboxymethyle Cellulose (CMC) Wrapped CuO Nanoparticles Via Chemical Precipitation Method".** This project is submitted for the partial fulfilment of the requirement for the degree of **M. Sc. in Chemistry**.

I wish him every success in his life.

Patra 04/09/24

Signature of the HOD

Dr. G. K. Patra

Professor

Department of Chemistry, G.G.V., Bilaspur, (C.G.)

Date:

Place: Bilaspur, C.G.

TABLE OF CONTENTS

A Comprehensive Review of Rare Earth Elements: Chemistry, Applications, and Environmental Impacts

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Aashish Kumar Prajapati

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Former Dean, School of Physical Sciences

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29in@yahoo.co.in
+91-7587312992
+91-9433378801

Ref. No. ***Bilaspur, Date:***

FORWARDING CERTIFICATE

This is to certify that ***Aashish Kumar Prajapati*** *has completed the project work entitled* ***"A Comprehensive Review of Rare Earth Elements: Chemistry, Applications, and Environmental Impacts"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 04 - 09 - 2024

Place: **Bilaspur**

Signature of the Head

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

INDEX

Synthesis and Characterization of Mono and Di-Chalcone Derivatives from Aldol Condensation

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Ashutosh Melly

M.Sc. 4th Sem (Organic Spl.)

Enrolment No. GGV/22/07208

Roll No. 22104109

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

September 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that ***Mr Ashutosh Melly*** has completed the project work entitled as ***"Synthesis and Characterization of Mono and Di-Chalcone Derivatives from Aldol Condensation"*** under the supervision of ***Dr. Bijnaneswar Mondal,*** for the partial fulfilment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the projcct

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04-09-24

Place: **Bilaspur, C.G.**

Signature of the HoD

अध्यक्ष / Head
रसायन शास्त्र विभाग
Dept. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

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DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"Synthesis and characterization of Cd (II) complexes with Schiff bases"

Master of Science IV Semester

Session: 2022 – 2024

SUBMITTED TO

Dr. NIRAJ KUMARI

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

Bhamini

SUBMITTED BY

BHAMINI UIKE

M.Sc. IV SEMESTER

ROLL NO. 22104110

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "Synthesis and characterization of Cd (II) complexes with Schiff bases" Submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

(Signature of H.O.D.)

अध्यक्ष / Head
Dr. G. KHATRA
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
Bilaspur 495009 (C.G.)
HEAD
(DEPARTMENT OF CHEMISTRY)

Bhamini
(Signature of Student)

BHAMINI UIKE

TABLE OF CONTENTS

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

A Project (review work)

On

" Bio-based nanocomposites for dye removal "

As a Partial Fulfilment for the Requirement of The Degree Of

Master of Science in Chemistry

Session 2022-24

SUPERVISED BY

Dr. SUNIL KUMAR SINGH

(ASSOCIATE PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

BHANUPRATAP MEHER

M.Sc. 4th Sem

ROLL NO. - 22104111

04/09/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

CERTIFICATE OF THE GUIDE

This is to certify that BHANUPRATAP MEHER has carried out this Review work under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "BIO-BASED NANOCOMPOSITES FOR DYE REMOVAL"

He has worked diligently, and methodically and also collected the literature very sincerely and carefully. During this review work, he has learnt about adsorption process.

To the best of our knowledge, the work presented in this project (review work) is original and has not been submitted anywhere. I recommend the project report be forward to the respective examiners for evaluation. I wish him every success in his career and life.

(Signature of Guide)

D[illegible]NIL KUMAR SINGH

ASSOCIATE PROFESSOR

(DEPARTMENT OF CHEMISTRY

G.G.V. ,BILASPUR)

(Signature of Student)

BHANUPRATAP MEHER

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that the project (review work) entitled "BIOBASED NANOCOMPOSITES FOR DYE REMOVAL" submitted by this project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

(Signature of H.O.D)

HEAD
DEPARTMENT OF CHEMISTRY
G.G.V., BILASPUR

Dept. of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G.)

(Signature of Student)

Bhanupratap Meher

A

Literature Based Project Report

On

"Electrochemical detection of glucose by nanozyme modified electrodes."

A Project Thesis Submitted for
Partial Fulfilment of the Requirement for the Degree of
M.Sc. in Chemistry

Session - 2023-2024

UNDER THE GUIDANCE OF

Dr. Uday Pratap Azad
(Assistant Professor)
Department of Chemistry

SUBMITTED BY

Dayasagar Sa
M.Sc. (Chemistry)
IV Semester
Roll No. 22104113

Guru Ghasidas Vishwavidyalaya
(A Central University)
Bilaspur (C.G.) 495001, India

Department of Chemistry
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)
(A Central University Established by Central Universities Act 2009 No. 25 of 2009)

FORWORDING CERTIFICATE

This is to certify that, Dayasagar Sa has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic **"Electrochemical detection of glucose by nanozyme modified electrodes."**

This project submitted for the partial fulfilment of required degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

Prof. Goutam Kumar Patra
(Head, Department of chemistry)
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

Head / Head
Dept. of Chemistry
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

INDEX

Synthesis and Characterization of Zinc Oxide/Cobalt Oxide Nanocomposite

Submitted to

Guru Ghashidas Vishwavidyalaya

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

Master of Science

In

CHEMISTRY

By

Mr. Dhrutisundar Nayak

(Exam Roll No:22104115)

Under the guidance of

Dr. Arti Srivastava

Associate Professor

DEPARTMENT OF CHEMISTRY

Guru Ghasidas Vishwavidyalaya

Bilaspur

2022-24

DECLARATION

I do hereby declare that the project entitled "**Synthesis and Characterization of Zinc Oxide/Cobalt Oxide Nanocomposite**" has been prepared and submitted by me to the Dept. of Chemistry as a partial fulfillment of the requirements for the Master's Degree in Science in the course curriculum. It is the original work I did under the able and timely guidance of **Associate Professor Dr. Arti Srivastava**, my faculty guide. Further, it has neither been submitted for the award of any other degree nor been published elsewhere earlier in full or in part.

Dhrutisundar Nayak

(Dhrutisundar Nayak)
Exam Roll No: 22104115

Place: Bilaspur
Date: 04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. Arti Shrivastav
Associate Professor

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India

CERTIFICATE

This is to certify that the project entitled **"Synthesis and Characterization of Zinc Oxide/Cobalt Oxide Nanocomposite"** is a record of bonafide project work carried out by Mr. Dhrutisundar Nayak under my supervision and guidance. It embodies the result of his original contribution. The project has reached the standard of fulfilling the regulation requirements relating to the Master's Degree in Science. No part of this project has been submitted to any institution for the award of any degree. I wish him all the best and success in his future endeavors.

Date: 04/09/2024
Place: Bilaspur

Dr. Arti Srivastava
Associate Professor

CERTIFICATE BY THE HEAD OF THE DEPARTMENT

The Thesis entitled **"Synthesis and Characterization of ZnO-Co_3O_4"** Submitted by **Dhrutisundar Nayak** (Roll No. 22104115, Enrollment No.: GGV/22/07214) has been examined by the undersigned as a part of the examination and is hereby recommended for the award of the degree of **Master of Science in chemistry** in the Department of Chemistry of **Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).**

Signature of HOD 04/09/24

Date

Contents

Synthesis and Characterization of Various Knoevenagel Derivatives from Aromatic Aldehydes

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfilment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Dipti Dhamde

M.Sc. 4th Sem (Organic Spl.)

Enrolment No. GGV/21/07220

Roll No. 22104116

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

4th September 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that ***Miss Dipti Dhamde*** has completed the project work entitled as ***"Synthesis and Characterization of Various Knoevenagel Derivatives from Aromatic Aldehydes"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfilment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04-09-24

Place: Bilaspur, C.G.

Signature of the HoD

Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

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Innovative Approaches to Heavy Metal Remediation in Water: A Review of Current Methods and Future Prospects

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science

in

Chemistry

Submitted by

Gowtham G

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.

Former Dean, School of Physical Sciences

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29in@yahoo.co.in
+91-7587312992
+91-9433378801

Ref. No. ***Bilaspur, Date:***

FORWARDING CERTIFICATE

This is to certify that ***Gowtham G*** *has completed the project work entitled* ***"Innovative Approaches to Heavy Metal Remediation in Water: A Review of Current Methods and Future Prospects"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 4/9/24

Place: **Bilaspur**

Signature of the Head

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

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A

PROJECT REPORT

ON

BENZIL DIHYDRAZONE BASED FLUOROSCENT- COLORIMETRIC CHEMOSENSOR FOR THE DETECTION OF Ni^{2+} IONs

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF M.Sc. CHEMISTRY

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA

(A Central University A^{++} Grade Accredited By NAAC)

2022-2024

Supervisor:

Prof. G. K. PATRA

GURU GHASIDAS VISHWAVIDYALAYA

(A CENTRAL UNIVERSITY A^{++} GRADE

ACCREDITED BY NAAC) BILASPUR, C.G.

Submitted by:

Harish

M. Sc. InorganicChemistry,

IV^{th} Semester

Roll No. 22104118

Prof. GOUTAM KUMAR PATRA
PROFESSOR,
DEPARTMENT OF CHEMISTRY
Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.
(A central University A^{++} Grade Accredited By NAAC)
BILASPUR, C.G.)

CERTIFICATE

This is to certify that HARISH (M.Sc. Inorganic Chemistry, IVth Semester) has been completed a project on "BENZIL DIHYDRAZONE BASED FLUOROSCENT- COLORIMETRIC CHEMOSENSOR FOR THE DETECTION OF Ni^{2+} IONs".

This project is submitted for the partial fulfillment of required degree in chemistry.

I wish for his every success in the future.

Signature
Prof. GOUTAM KUMAR PATRA
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central UNIVERSITY A^{++} Grade Accredited By NAAC) BILASPUR C.G.

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.

ORTHO-PHENYLENEDIAMINE BASED DI-SCHIFF BASE CHEMOSENSOR FOR SELECTIVE AND SENSITIVE DETECTION OF Ag+ ION

A Project submitted in partial fulfilment for the requirements for the Degree of

MASTERS OF SCIENCE IN CHEMISTRY

SUBMITTED BY:

Harshit Kumar

EXAMINATION ROLL NO.: 22104119M.Sc.

INORGANIC CHEMISTRY (4th)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

2022-2024

Under the Supervision of

PROF. GOUTAM KUMAR PATRA

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

CERTIFICATE

This certifies that **Harshit Kumar** a student enrolled, **Examination Roll Number: 22104119** in the **IV Semester** of the **Master of Science in Inorganic Chemistry** program at the **Department of Chemistry, Guru Ghasidas Vishwavidyalaya**, has compiled the project titled **"Ortho-phenylenediamine based di-Schiffbase Chemosensor for selective and sensitive detection of Ag+-ion"** based solely on literature research for the partial fulfilment of the requirements for the award of the **Master of Science degree in Inorganic Chemistry at Guru Ghasidas Vishwavidyalaya**. The student is solely responsible for any instances of plagiarism, and the teachers of the Department of Chemistry bear no responsibilityfor any such issues arising from this report.

I wish for her every success in the future.

Signature

PROF. GOUTAM KUMAR PATRA

(Head of Department of Chemistry)

Guru Ghasidas Vishwavidyalaya

Bilaspur, Koni, C.G.

CONTENTS

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Manorama
Professor
B.Sc./M.Sc.),
Ph.D. , NET

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
manoramabhu@gmail.com
+91-7587401982
+91-7587401982

Ref. No.

Bilaspur, Date:

CERTIFICATE

This is to certify that ***Indrakumari*** *has completed the project work entitled "* ***A Brief Overview Of Microfluidics*** *" under my supervision for the partial fulfillment of required degree of* ***"Master of Science"****. I wish his every success in the future life.*

Date: 04/09/2024

Place: **Bilaspur**

Signature

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Former Dean, School of Physical Sciences

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29@gmail.com
+91-7587312992
+91-9433378801

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Indrakumari*** *has completed the project work entitled "* ***A Brief Overview of Microfluidics*** *" under the supervision of* ***Prof. Manorama****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation. I wish his every success in the future life.*

Date: 04/09/2024

Place: **Bilaspur**

Signature of the Head

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

A Brief Overview of Microfluidics

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Indrakumari

Supervisor

Prof. Manorama

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Synthesis, Characterization and Applications of Mxenes

Dissertation submitted for
Partial fulfilment for the Degree of

MASTER OF SCIENCE
in
CHEMISTRY

Submitted by
Ipsita Sahoo
M.Sc. Chemistry IVthSemester
Roll. No. 22104121
Enrolment No.GGV/22/07219

Under Supervision of
Prof. Ashish Kumar Singh
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni- Bilaspur 495009 (C.G.)

CERTIFICATE

This is to certify that **Ms. IPSITA SAHOO**, student of Master of Science (Chemistry) in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) has completed her dissertation entitled **"Synthesis, Characterization and applications of Mxenes"** and submitted to the Department under the supervision of Prof. Ashish Singh. The dissertation is the partial fulfilment for the award of the degree of Master of Science in Chemistry.

04-09-24

Prof. G. K. Patra

Head of the Department

Dept. of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur 495009 (C.G.)

Table of Contents

EVALUATION OF $ZnCl_2$ TREATED BARK ASH AS AN ADSORBENT FOR MALACHITE GREEN REMOVAL FROM WASTEWATER

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

This dissertation is submitted in partial fulfilment of the requirements for the degree of

Master of Science

in

Chemistry

Sep 2024

Submitted by

Jagannath Prasad Sahoo

M.Sc. 4th Sem (Physical chemistry)

Enrolment No. GGV/22/07220

Roll No. 22104122

Supervisor

Dr. Charu Arora (Professor)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Guru Ghasidas Vishwavidyalaya

Prof Charu Arora

Professor

Dept. of Chemistry

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur-495009, C.G.

(A Central University established under Central Universities Act 2009)

CERTIFICATE

This is to certify that *Mr. Jagannath Prasad Sahoo* has completed the project dissertation entitled ***"Evaluation of $ZnCl_2$ Treated Bark Ash as an Adsorbent for Malachite Green Removal from Wastewater"*** under my supervision for the partial fulfilment of required degree of *"Master of Science in Chemistry"*. Throughout this project, he has demonstrated diligence, a methodical approach, and a sincere commitment to collecting and reviewing relevant literature. In the process, he has gained a comprehensive understanding of various aspects of chemical science related to the topic at hand.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I wish him every success in the future life.

Date: 4.9.24

Place: Bilaspur,(C.G)

Charu Arora

Signature of the Supervisor

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that *Mr. Jagannath Prasad Sahoo* has completed the project work entitled as ***"Evaluation of $ZnCl_2$ Treated Bark Ash as an Adsorbent for Malachite Green Removal from Wastewater"*** under the supervision of *Prof Charu Arora*, for the partial fulfilment of required degree of *"Master of Science in Chemistry"*.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04-09-24

Place: Bilaspur, C.G.

Patra

Signature of the H.O.D

Synthesis and characterization of cyclotrimerized aromatic derivatives from various Acetophenones

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfilment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by
Jagriti Nag
M.Sc. 4th Sem (Organic Spl.)
Enrolment No. GGV/22/07221
Roll No. 22104123

Supervisor
Dr. Bijnaneswar Mondal
Assistant Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya

4th September 2024

04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that ***Miss Jagriti nag*** has completed the project work entitled as ***"Synthesis and characterization of cyclotrimerized aromatic derivatives from various acetophenones"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfilment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04/05/24

Place: Bilaspur, C.G.

Signature of the HOD

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A

Review Based Project Report

ON

Molecular Machine And Application: A Brief Review

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

Session: 2023-2024

SUPERVISED BY
Dr. Suryabhan Singh
Associate Professor
Department of Chemistry

SUBMITTED BY
Jaya Kashyap
Roll no. 22104124
Enroll No. GGV/22/07222

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A Central University)
Bilaspur (C.G.) 495009, India

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

(A Central University Established by Central Universities Act 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that JAYA KASHYAP has carried out this literature survey based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "MOLECULAR MACHINE AND APPLICATION". This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

Dr. Goutam ku. Patra

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A PROJECT REPORT

ON

"SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES USING NEEM EXTRACT"

Master of Science IV Semester

Session: 2023 – 2024

SUBMITTED TO

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

JYOTIRMAYEE PAL

M. Sc. IV SEMESTER

ROLL NO. 22104125

AG
04/09/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES USING NEEM EXTRACT" is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

Patra 04-09-24

(Signature of H.O.D.)

Dr. G.K. PATRA
Head
HEAD
Deptt. of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur 495009 (C.G.)
(DEPARTMENT OF CHEMISTRY)

Jyotirmayee Pal

(Signature of Student)

JYOTIRMAYEE PAL

TABLE OF CONTENTS

A Literature Based Project Report

On

Synthesis of 2D Material Molybdenum Phosphide

Submitted For

Partial Fulfilment of The Requirement for The Degree Of Master of Science in Chemistry

Submitted By

Ms. Kanchan

M.Sc. IV Semester

Roll No. 22104126

Enroll. No. GGV/22/07224

Supervised By

Prof. Ashish Kumar Singh

Department Of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur - 495009 (C.G.)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

Session 2022--2024

04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. G.K Patra

Head M.Sc., Ph.D., Post

Doc

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, India

FORWARDING CERTIFICATE

This is to certify that **Kanchan** *has completed the project work entitled as* **"Synthesis of 2D material Molybdenum Phosphide"** *under the supervision of* **Prof. Ashish Kumar Singh,** *for the partial fulfilment of required degree of* ***"Master of Science in Chemistry"*** *and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date: 04-09-24

Place: **Bilaspur, C.G.**

Signature of the HOD

Dept. of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur 495009 (C.G.)

CONTENT

Metal Organic Framework Materials and Production of Ammonia

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science

in

Chemistry

Submitted by

Kommu Raju

Supervisor

Dr. Suryabhan Singh

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Former Dean, School of Physical Sciences

Department of Chemistry
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patra29in@yahoo.co.in
+91-7587312992
+91-9433378801

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Kommu Raju*** *has completed the project work entitled "* ***Metal Organic Framework Materials and Production of Ammonia*** *" under the supervision of* ***Dr. Suryabhan Singh****, for the partial fulfillment of required degree of "****Master of Science****" and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date:

Place: **Bilaspur**

Patra

Signature of the Head

INDEX

Effective removal of basic fuchsin dye from waste water using eucalyptus bark ash

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

This dissertation is submitted in partial fulfillment of the requirements for the degree of

Master of Science

in

Chemistry

Submitted by

Kundan Pandey

M.Sc. 4th Sem (Physical chemistry)

Enrolment No. GGV/22/07226

Roll No. 22104128

Supervisor

Prof. Charu Arora

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

September 2024

04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof Charu Arora

Professor of Dept. Chemistry

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur-495009, C.G.

CERTIFICATE

This is to certify that *Mr. Kundan Pandey* has completed the project dissertation entitled ***"Effective removal of basic fuchsin dye from waste water using Eucalyptus bark ash"*** under my supervision for the partial fulfilment of required degree of *"Master of Science in Chemistry"*. Throughout this project, he has demonstrated diligence, a methodical approach, and a sincere commitment to collecting and reviewing relevant literature. In the process, he has gained a comprehensive understanding of various aspects of chemical science related to the topic at hand.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I wish him every success in the future life.

Date: 4.9.24

Place: Bilaspur,(C.G)

Charu Arora

Signature of the Supervisor

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that *Mr. Kundan Pandey* has completed the project work entitled as ***"Effective removal of basic fuchsin dye from waste water using eucalyptus bark ash"*** under the supervision of *Prof Charu Arora*, for the partial fulfilment of required degree of *"Master of Science in Chemistry"*.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04-09-24
Place: Bilaspur, C.G.

Patra
Signature of the HoD

A Literature-based Project Report On

"DOPED MOLYBDENUM DISULFIDE NANOMATERIALS AND ITS APPLICATION"

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

Master of Science IV Semester Session: 2022 – 2024

SUBMITTED TO

Dr. Ashish Kumar Singh

DEPARTMENT OF CHEMISTRY

GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

Lipsamayee Bhoi

M.Sc. IV SEMESTER

ROLL NO. 22104129

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "DOPED MOLYBDENUM DISULFIDE NANOMATERIALS AND ITS APPLICATION" Submitted by. This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.

I wish her every success in her life.

04-09-24

(Signature of H.O.D.)

Dr. G.K. PATRA
HEAD
(DEPARTMENT OF CHEMISTRY)

CONTENT

Synthesis of Tetrahydrobenzo[b]pyran Derivatives using Task-Specific Ionic Liquid, $[AcMIm]_2CuCl_4$

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In Partial Fulfilment For the Award of the Degree

of

Master of Science in Chemistry

By

Muskan Deshmukh

Under the Guidance of

Dr. Subhash Banerjee

Research Center

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

August 2024

FORWARDING CERTIFICATE

This is to certify that **Miss. Muskan Deshmukh** has carried out this research-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, (C.G.) on the topic *"Synthesis of Tetrahydrobenzo[b]pyran Derivatives using Task-Specific Ionic Liquid, $[AcMIm]_2CuCl_4$"*. This project is submitted for the partial fulfillment of the requirement for the degree of **M. Sc. in Chemistry** and forwarded to the examiner for evaluation.

I wish every success in her life.

03/09/24

Signature of the HOD

Dr. Goutam Kumar Patra

Professor

Department of Chemistry, G.G.V., Bilaspur, (C.G.)

INDEX

Development of Ni-Based Task-Specific Room Temperature Ionic Liquids for Suzuki Coupling Reaction

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In Partial Fulfilment for the Award of the Degree

Of

Master of Science in Chemistry

By

Nikhil Bareth

Under the Guidance of

Dr. Subhash Banerjee

Research Centre

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

August 2024

04/09/24

FORWARDING CERTIFICATE

This is to certify that **Mr. Nikhil Bareth** has carried out this research-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, (C.G.) on the topic ***"Development of Ni-Based Task-Specific Room Temperature Ionic Liquids for Suzuki Coupling Reaction"***. This project is submitted for the partial fulfilment of the requirement for the degree of **M. Sc. in Chemistry** and forwarded to the examiner for evaluation.

I wish every success in his life.

Signature of the HOD

Prof. Goutam Kumar Patra

Head of Department

Department of Chemistry, G.G.V., Bilaspur, (C.G.)

Table of Content

Synthesis and Characterization of Various Azobenzene Derivatives from Nitroarenes

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Payal Thakur

M.Sc. 4th Sem (Organic Spl.)

Enrolment No. GGV/22/07232

Roll No.22104134

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

September 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur-495009, C.G.

FORWARDINGCERTIFICATE

This is to certify that ***Miss Payal Thakur*** has completed the project work entitled as ***"Synthesis and Characterization of Various Azobenzene Derivatives from Nitroarenes"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfilment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

1) is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 04/09/2024

Place: **Bilaspur, C.G.**

Signature of the HoD

Head / Chemistry
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

TABLE OF CONTENTS

BARBITURIC ACID PADLOCKED Ni(II) MARCROCYCLES

A Project submitted in partial fulfilment for the requirements for the Degree of

MASTERS OF SCIENCE IN CHEMISTRY

SUBMITTED BY:

POULOMI BHADRA

EXAMINATION ROLL NO.: 22104135

M.Sc. INORGANIC CHEMISTRY(4th)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

2022-2024

Under the Supervision of

PROF. GOUTAM KUMAR PATRA

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

CERTIFICATE

This certifies that Miss **POULOMI BHADRA** a student enrolled, Examination Roll Number: **22104135** in the **IV Semester of the Master of Science in Inorganic Chemistry** program at the **Department of Chemistry, Guru Ghasidas Vishwavidyalaya**, has compiled the project titled **"BARBITURIC ACID PADLOCKED Ni(II) MARCROCYCLES"** based solely on literature research for the partial fulfilment of the requirements for the award of the **Master of Science degree in Inorganic Chemistry at Guru Ghasidas Vishwavidyalaya**. The student is solely responsible for any instances of plagiarism, and the teachers of the Department of Chemistry bear no responsibility for any such issues arising from this report.

I wish for her every success in the future.

Signature

PROF. GOUTAM KUMAR PATRA

(Head of Department of Chemistry)

Guru Ghasidas Vishwavidyalaya

Bilaspur, Koni, C.G.

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

A Project

On

WATER REMEDIATION USING RHIZOME PLANT DERIVED ACTIVATED CARBON

Master of Science IV Semester

Session 2022-24

SUPERVISED BY

Dr. SUNIL KUMAR SINGH

(ASSOCIATE PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

PRAGYA SAHU

M.Sc. 4th Sem

ROLL NO. - 22104136

04/09/24

GURU GHASIDAS UNIVERSITY, BILASPUR

(A Central University Established by the Central University Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that the project work entitled "WATER REMEDIATION USING RHIZOME PLANT DERIVED ACTIVATED CARBON" submitted by this project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in his life.

(Signature of H.O.D)

HEAD
DEPARTMENT OF CHEMISTRY

अध्यक्ष / Head
Dept. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

(Signature of Student)

PRAGYA SAHU

Synthesis of Novel Acidic Ionic liquid, [AcMIm]2FeCl4 for Alkylation of Aromatic Hydrocarbon

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In Partial Fulfilment For the Award of the Degree

Of

Master of Science in Chemistry

By

Pratibha Gabel

Under the Guidance of

Dr. Subhash Banerjee

Research Centre

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

September 2024

04/09/24

FORWARDING CERTIFICATE

This is to certify that **Ms. Pratibha Gabel** has carried out this research-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, (C.G.) on the topic *"Synthesis of Novel Acidic Ionic liquid, [AcMIm]2FeCl4 for Alkylation of Aromatic Hydrocarbon"*. This project is submitted for the partial fulfilment of the requirement for the degree of **M. Sc. in Chemistry** and forwarded to the examiner for evaluation.

I wish every success in her life.

Signature of the HOD

Dr. Gautam Kumar Patra

Professor

Department of Chemistry, G.G.V., Bilaspur, (C.G.)

Table of Content

A LITERATURE BASED PROJECT REPORT

ON

SYNTHESIS OF 2D NiS_2 MATERIAL

SUBMITTED FOR

PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN CHEMISTRY

SESSION 2022-2024

GUIDED BY

Dr. Ashish kumarsingh

Professor

Department Of Chemistry

Guru Ghasidas university

Bilaspur (C.G.)

SUBMITTED BY

Preeti

MSc 4th Sem

Roll No. 22104138

Enroll No-GGV/22/07236

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY ,BILASPUR (C.G.) 495009,INDIA

(A Central University Established by Central University Act 2009 No 25 of 2009)

04/09/24

FORWARDING CERTIFICATE

This is to certify that Ms. Preeti has carried out this literature survey-based project in the Department of Chemistry , Guru GhasidasVishwavidyalaya,Bilaspur (C.G.) on the topic "SYNTHESIS OF 2D NiS_2 MATERIAL" . This project is submitted for the partial fulfilment of requirements for the degree of MSc in Physical Chemistry and forwarded for evaluation.

I wish her every successin future.

04-09-24

Prof. G.K. Patra

Head , Department of Chemistry,

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.) 495009, India

CONTENT

A

PROJECT REPORT

ON

SYNTHESIS OF PYRENE - BASED SCHIFF - BASE FOR ANALYTICAL APPLICATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF M.Sc. CHEMISTRY

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA

(A Central University A^{++} Grade Accredited By NAAC)

2022-2024

Supervisor:

Prof. G. K. PATRA

GURU GHASIDAS VISHWAVIDYALAYA

(A CENTRAL UNIVERSITY A^{++} GRADE ACCREDITED BY NAAC) BILASPUR, C.G.

Submitted by:

PRIYANSHI

M. Sc. Inorganic Chemistry,

IVth Semester

Roll No. 22104139

Prof. GOUTAM KUMAR PATRA
PROFESSOR,
DEPARTMENT OF CHEMISTRY
Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.
(A central University A⁺⁺ Grade Accredited By NAAC)
BILASPUR, C.G.)

CERTIFICATE

This is to certify that PRIYANSHI (M.Sc. Inorganic Chemistry, IVth Semester) has been completed a project on " SYNTHESIS OF PYRENE-BASED SCHIFF-BASE FOR ANALYTICAL APPLICATION ".

This project is submitted for the partial fulfillment of required degree in chemistry.

I wish for his every success in the future.

Signature

Prof. GOUTAM KUMAR PATRA
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central UNIVERSITY A⁺⁺ Grade Accredited By NAAC) BILASPUR C.G.

CONTENTS

Synthesis & Characterization Of Carrageenan Wrapped CuO Nanoparticles via Chemical Precipitation Method

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In Partial Fulfilment For the Award of the Degree

Of

Master of Science in Chemistry

By

Ravindra Kumar Maravi

Under the Guidance of

Dr. Arti Srivastava, Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

September 2024

DECLARATION BY THE CANDIDATE

I the undersigned solemnly declare that the report of the major project entitled ***"Synthesis & Characterization Of Carrageenan Wrapped CuO Nanoparticles Via Chemical Precipitation Method"*** based on my work carried out during my study in the Department of *Chemistry*, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of **Dr. Arti Srivastava**. I assert that the statements made and conclusions drawn are an outcome of my research work.

Signature of the Candidate

Ravindra Kumar Maravi

Roll No.: 22104141

Enrolment No.: GGV/22/07239

Signature of the Supervisor

Dr. Arti Srivastava

Associate Professor

Forwarded to Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.), India

CERTIFICATE BY THE HEAD OF THE DEPARTMENT

The M. Sc. Project entitled ***"Synthesis & Characterization Of Carrageenan Wrapped CuO Nanoparticles Via Chemical Precipitation Method"*** submitted by ***Mr. Ravindra Kumar Maravi*** (Roll No. 22104141, Enrolment No.: GGV/22/07239) has been examined by the undersigned as a part of the examination and is hereby recommended for the award of the degree of **Master of Science** in the Department of Chemistry of Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.).

Signature of the Head of Department

Date: 04/09/24

Table of Content

"Imidazole based Optical chemosensor for detection of Fe^{3+} ion"

A Project submitted in partial fulfilment of the requirements for the Degree of

MASTERS OF SCIENCE IN CHEMISTRY

SUBMITTED BY

REENA GOYAL

EXAMINATION ROLL NO.: 22104142

M.Sc. INORGANIC CHEMISTRY(4^{th})

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

2022-2024

Under the Supervision of

PROF. GOUTAM KUMAR PATRA

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR, KONI, C.G.

CERTIFICATE

This certifies that Miss **REENA GOYAL,** a student enrolled, **Examination Roll Number: 22104142** in the **IV Semester** of the **Master of Science in Inorganic Chemistry** program at the **Department of Chemistry, Guru Ghasidas Vishwavidyalaya**, has compiledthe project titled **"Imidazole based Optical chemosensor for detection of Fe^{3+} ion"** based solely on literature research for the partial fulfilment of the requirements for the award of the **Master of Science degree in Inorganic Chemistry at Guru Ghasidas Vishwavidyalaya.** The student is solely responsible for any plagiarism, and the teachers of the Department of Chemistry bear no responsibilityfor any such issues arising from this report.

I wish for her every success in the future.

Signature

PROF. GOUTAM KUMAR PATRA

(Head of Department of Chemistry)

Guru Ghasidas Vishwavidyalaya

Bilaspur, Koni, C.G.

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

Pathways to Green Energy: A Review of Hydrogen Fuel Production and Its Environmental Implications

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Ritik Ekka

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Former Dean, School of Physical Sciences

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29in@yahoo.co.in
+91-7587312992
+91-9433378801

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Ritik Ekka*** *has completed the project work entitled* ***"Pathways to Green Energy: A Review of Hydrogen Fuel Production and Its Environmental Implications"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 4-9-24

Place: **Bilaspur**

Signature of the Head

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

INDEX

Synthesis and Characterization of Alumina nanoparticles

(Al_2O_3) via sol-gel method

Dissertation submitted in
Partial fulfilment for the Degree of

MASTER OF SCIENCE
in
CHEMISTRY

By

Samikshya Nanda

M. Sc. Chemistry IVth Semester
Roll. No. 22104144
Enrolment No. GGV/22/07241

Under the Supervision of

Dr. Arti Srivastava

Associate Professor

DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
KONI- BILASPUR 495009 (C.G.)

Session 2023-24

DECLARATION BY THE CANDIDATE

I, **Samikshya Nanda**, hereby declare that the dissertation entitled **"Synthesis and Characterization of Alumina nanoparticles"** Submitted to the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur for partial fulfilment of the requirements for the award of the degree of Master of Science (M. Sc.) in Chemistry. The work contained in the thesis is original and has been done by me under the supervision of Dr. Arti Srivastava (Associate Professor). To the best of my knowledge, the work has not been submitted to any other institution for any other Degree/ Diploma. I have followed the guidelines provided by the university in writing the thesis. The assistance and help received during the course of this investigation have been duly acknowledged.

Date: 04-Sept-2024

Place: Bilaspur

Samikshya Nanda

SAMIKSHYA NANDA
Roll No. – 22104144
Enrolment No. – GGV/22/07241
M.Sc. Chemistry IVth Semester

CERTIFICATE OF THE SUPERVISOR

This is to certify that the work contained in the dissertation entitled **"Synthesis and Characterization Alumina nanoparticles"** submitted to the Department of Chemistry of Guru Ghasidas Vishwavidyalaya, Koni- Bilaspur (C.G.) by **Ms. Samikshya Nanda** (Roll No. 22104144) for the award of the degree of M. Sc. (Chemistry), is a record of bonafide research work carried out by her under my supervision. The contents embodied in the dissertation have not been submitted for the award of any other degree or diploma in any other university.

Date: 04 - Sept - 2024

Place: Bilaspur

Signature
Head of the Department

Signature of Supervisor
Dr. Arti Srivastava
(Associate Professor)

TABLE OF CONTENTS:

Optimizing Cultivation and Production Techniques for Oyster Mushroom

A dissertation submitted in partial fulfilment of the requirement for the degree of Masters of Science (MSc.) in Chemistry

By

Satyapriya Gahare

(EnrollmentNo.GGV/22/07242)

Under Supervision of

Dr. Khemchand Dewangan

Professor

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR , 495009, CG, INDIA

04/09/24

CERTIFICATE

This is to certify that the thesis entitled "Optimizing Cultivation and Production Techniques for Oyster Mushroom" is the work carried by Miss. Satyapriya Gahare (Enrollment no. GGV/22/07242) of department of chemistry, Guru Ghasidas vishwavidyalaya, Bilaspur (C.G) is a verified record of the work completed under my direction and supervision. The thesis work has not been submitted to another university or organization for a degree or professional certification. She wrote this thesis alone, and it is free of plagiarism and clear enough in its grammar to be read. I certify that, unless otherwise mentioned in this thesis, the work contained within it is entirely my own original research.

Date:4th Sept 24

Place: GGv, Bilaspur

04/09/2024

Dr. Khemchand Dewangan

Project Supervisor

Department of Chemistry

Guru Ghasidas vishwavidyalaya

Bilaspur-495009, CG, India

04-09-24

Prof. G .R. Patra

Head of Department

Department of Chemistry

Guru Ghasidas vishwavidyalaya

Bilaspur-495009, CG, India

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

Synthesis of Perovoskite Nanocrystal and It's Application

A dissertation submitted in partial fulfilment of the requirement for the degree of Masters of Science (MSc.) in Chemistry

By

Shibaprasad Barik

(EnrollmentNo.GGV/22/07244)

Under Supervision of

Dr. Khemchand Dewangan

Professor

GURU GHASIDAS VISHWAVIDYALAYA

04/09/24

BILASPUR , 495009, CG, INDIA

CERTIFICATE

This is to certify that the thesis entitled Perovskite nanocrystal and its application'' is the work carried by Mr. Shiba Prasad (Enrollment no. GGV/22/07244) of department of chemistry, Guru Ghasidas University, Bilaspur (C.G) is a verified record of the work completed under my direction and supervision. The thesis work has not been submitted to another university or organization for a degree or professional certification. She wrote this thesis alone, and it is free of plagiarism and clear enough in its grammar to be read. I certify that, unless otherwise mentioned in this thesis, the work contained within it is entirely my own original research.

04/09/2024

Date: 4th Sept 24

Dr. Khemchand Dewangan

Place: GGU, Bilaspur

Project Supervisor

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, CG, India

Prof. G .K. Patra 04/09/24

Head of Department

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, CG, India

CONTENT

Literature Review On Synthesis On Metal Nanoparticles and their Applications

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Shristi Rai

Supervisor

Prof. Manorama

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Proffesor
Manorama

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
manormabhu@gmail.com
+91-7587401982

Ref. No. *Bilaspur, Date:*

CERTIFICATE

This is to certify that ***Shristi Rai*** *has completed the project work entitled* ***"Literature Review on Synthesis of Metal Nanoparticles and their Applications"*** *under my supervision for the partial fulfillment of required degree of* ***"Master of Science."***

I wish his every success in the future life.

Date: 04/05/24

Place: Bilaspur

Signature
04/05/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.

Former Dean, School of Physical Sciences

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29@gmail.com
+91-7587312992
+91-9431378801

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Shristi Rai*** *has completed the project work entitled* ***"Literature Review on Synthesis of Nanoparticles and their Applications"*** *under the supervision of* ***Prof. Manorama****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 04/09/24

Place: Bilaspur

Signature of the Head
HOD / Head
Dept. of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur 495009 (C.G.)

Chemical Profiling and Biodiversity Assessment of Medicinal Plants in a GGV Campus: A Case Study

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Masters of Science

in

Chemistry

Submitted by

Shivangi Mishra

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Head department of Chemistry

Department of Chemistry
Guru Ghasidas University
Bilaspur-495009, CG, India
patra29in@yahoo.co.in
+91-7587312992
+91-9433378801

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Shivangi Mishra*** *has completed the project work entitled* ***"Chemical Profiling and Biodiversity Assessment of Medicinal Plants in a GGV Campus: A Case Study."*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Masters of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 4th Sept 2024

Place: **Bilaspur**

Signature of the Head

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

INDEX

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"Synthesis and characterization of Zn(II) complexes with Schiff bases"

Master of Science IV Semester

Session: 2023 – 2024

SUBMITTED TO

Dr. NIRAJ KUMARI

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

SUBMITTED BY

SHRAVYA KUMAR SINGH

M.Sc. IV SEMESTER

ROLL NO. 22104149

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "Synthesis and characterization of Zn(II) complexes with Schiff bases" Submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

Patra

(Signature of H.O.D.)

PROF. G.K. PATRA
अध्यक्ष / Head
रसायन शास्त्र विभाग
HEAD
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय
(DEPARTMENT OF CHEMISTRY)
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

(Signature of Student)

SHRAVYA KUMAR SINGH

TABLE OF CONTENTS

A

Literature Based Project Report

On

"ELECTROCHEMICAL SENSORS FOR THE DETECTION OF MYOGLOBIN"

A Project Thesis Submitted for
Partial Fulfilment of the Requirement for the Degree of
M.Sc. in Chemistry

Session - 2023-2024

UNDER THE GUIDANCE OF

Dr. Uday Pratap Azad
(Assistant Professor)
Department of Chemistry

SUBMITTED BY

SIDDHARTH MISHRA
M.Sc. (Chemistry)
IV Semester
Roll No. 22104151

Guru Ghasidas Vishwavidyalaya
(A Central University)
Bilaspur (C.G.) 495001, India

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

(A Central University Established by Central Universities Act 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that, SIDDHARTH MISHRA has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur(C.G.) on the topic "ELCTROCHEMICAL SENSORS FOR THE DETECTION OF MYOGLOBIN" This project submitted for the partial fulfilment of required degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

Prof. Goutam Kumar Patra
(Head, Department of chemistry)
Guru Ghasidas Vishwavidyalaya
Bilaspur (C. G.)

CONTENT

Effective removal of malachite green dye from Camellia Sinensis

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

This dissertation is submitted in partial fulfillment of the requirements for the degree of

Master of Science

in

Chemistry

Submitted by

SONU KUMAR

M.Sc. 4th Sem (Physical chemistry)

Enrolment No. GGV/22/07249

Roll No. 22104152

Supervisor

Prof. Charu Arora

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof Charu Arora

Professor of Dept. Chemistry

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur-495009, C.G.

CERTIFICATE

This is to certify that *Mr. Sonu Kumar* has completed the project dissertation entitled "***Effective removal of malachite green dye from Camellia Sinensis ash***" under my supervision for the partial fulfilment of required degree of **"Master of Science in Chemistry"**. Throughout this project, he has demonstrated diligence, a methodical approach, and a sincere commitment to collecting and reviewing relevant literature. In the process, he has gained a comprehensive understanding of various aspects of chemical science related to the topic at hand.

To the best of my knowledge and belief of the project

1) It is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I wish him every success in the future life.

Date: 4·9·24

Place: Bilaspur,(C.G)

Charu Arora

Signature of the Supervisor

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur - 495009, C.G.

FORWARDING CERTIFICATE

This is to certify that *Mr. Sonu Kumar* has completed the project work entitled as ***"Effective removal of malachite green dye from Camellia Sinensis ash"*** under the supervision of Prof Charu Arora, for the partial fulfilment of required degree of ***"Master of Science in Chemistry".***

To the best of my knowledge and belief of the project

1) It is original and has not been submitted anywhere for award of any degree.
2) Fulfils the requirement of the Ordinance relating to the M.Sc. degree of the university.

I recommend the project report be forwarded to the respective examiners for evaluation.

Date: 4/9/24

Place: Bilaspur, C.G.

Signature of HoD
अध्यक्ष/Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

A Project Report

On

"SYNTHESIS OF COPPER OXIDE NANOPARTICALES CAPPING WITH POLYVINYL ALCOHOL AND ITS APPLICATION"

Master of Science IV Semester

Session: 2023 – 2024

SUBMITTED TO

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR (C.G.)

SUBMITTED BY

SUMIT RANJAN DAS

M.Sc. IV SEMESTER

ROLL NO: 22104153

04/09/24.

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act, 2009 No. 25 of 2009)

FORWARDING CERTIFICATE

This is to certify that the project work entitled "SYNTHESIS OF COPPER OXIDE NANOPARTICLES CAPPING WITH POLYVINYL ALCOHOL AND ITS APPLICATION" Submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

04-09-24

(Signature of H.O.D.)

Dr. G... Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
HEAD
(DEPARTMENT OF CHEMISTRY)
गुरु घासीदास विश्वविद्यालय
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (C.G.)

Sumit Ranjan Das
(Signature of Student)

SUMIT RANJAN DAS

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A DISSERTATION WORK

ON

"SYNTHESIS AND CHARACTERIZATION OF CU(II) COMPLEX WITH SCHIFF BASES"

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

(A Central University Established by the Central Universities Act 2009 No. of 2009)

SUBMITTED TO

DR. NIRAJ KUMARI

(ASSITANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

SUBMITTED BY

SUPRIYA RAI

M.SC. IV SEMESTER

ROLL NO.22104154

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

CERTIFICATE

THIS IS TO CERTIFY THAT **SUPRIYA RAI** OF M. Sc IV SEMESTER **DEPARTMENT OF CHEMISTRY** OF GURU GHASIDAS UNIVERSITY BILASPUR (C.G.) (ENROLLMENT NO. GGV/19/7215). ON THE TOPIC **"SYNTHESIS AND CHARACTERIZATION OF CU(II) COMPLEX WITH SCHIFF BASES"**. SHE HAS SUCCESSFULLY COMPLETED HER DISSERTATION WORK. SHE HAS TAKEN PROPER CARE AND SHOWN AT MOST SINCERITY IN THIS PROJECT'S COMPLETION. I CERTIFY THAT THIS PROJECT IS UP TO MY EXPECTATIONS AND RECOMMEND THIS WORK BE FORWARDED TO THE RESPECTIVE EXAMINER FOR EVALUATION.

(SIGNATURE OF THE GUIDE)	(SIGNATURE OF STUDENT)	(SIGNATURE OF HOD)
DR. NIRAJ KUMARI	**SUPRIYA RAI**	**Prof. G.K. PATRA**
(ASSISTANT PROFESSOR)		अध्यक्ष (Head) (HEAD) रसायन शास्त्र विभाग Deptt. of Chemistry गुरु घासीदास विश्वविद्यालय, Guru Ghasidas Vishwavidyalaya बिलासपुर 495009 (छ.ग.) Bilaspur 495009 (C.G.)

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A Project Report

On

Synthesis And Characterization Of Fe_2O_3-Ag Composite Nanoparticles

Submitted For

Partial Fulfilment of the Requirement for The Degree Of

Master of Science in Chemistry

Supervised By

Dr. Arti Srivastava

Associate Professor

Department Of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur - 495009 (C.G.)

Submitted By

Suresh Kumar Jena

M.Sc. IV Semester

Roll No. 22104155

Enroll. No. GGV/22/07251

2022-2024

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) Session

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. Arti Srivastava

Associate Professor

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, India

CERTIFICATE

This is to certify that ***Suresh Kumar Jena*** *has completed the project* dissertation *entitled as "* **Synthesis And Characterization Of Fe_2O_3-Ag Composite Nanoparticles***" under my supervision for the partial fulfillment of required degree of* ***"Master of Science in Chemistry"****. He has worked diligently, methodically and also collected the literature very sincerely. During this project work he has learnt about various aspects of chemical science to the entitled topic. To the best of our knowledge the work presented in this project is original and has not been submitted anywhere. I wish him every success in the future life.*

Date: 04/09/2024

Signature of the Guide

Place: **Bilaspur, C.G.**

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. Goutam Kumar Patra

Professor and Head

M.Sc., Ph.D., Post Doc.

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, India

FORWARDING CERTIFICATE

This is to certify that ***Suresh Kumar Jena*** *has completed the project work entitled as "***Synthesis And Characterization Of Fe_2O_3-Ag Composite Nanoparticles***" under the supervision of* ***Dr. Arti Srivastava****, for the partial fulfillment of required degree of* ***"Master of Science in Chemistry"*** *and I wish him every success in the future life.*

Date: 04-09-24

Signature of the HOD

Place: **Bilaspur, C.G.**

CONTENT

A PROJECT

ON

'Separation of Water-Oil Emulsion using Nanodemulsifier coupled with Thermal Treatment"

Submitted as Partial Fulfilment for the Requirement of The Degree Of

Master of Science in Chemistry

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur

(C.G.) Session 2022-2024

Supervised By

Dr. Sunil Kumar Singh

Associate Professor

Department Of Chemistry

Guru Ghasidas
Vishwavidyalaya
Bilaspur – 495009 (C.G.)

Submitted By

Swaraj Shreechandan Sahu

M.Sc. IV Semester

Roll No. 22104157

Enroll. No.
GGV/22/07253

SEPTEMBER 2024

04/09/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. Sunil Kmar Singh

Associate Professor

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, India

CERTIFICATE

This is to certify that Swaraj Shreechandan Sahu has completed the project dissertation entitled *"Separation of Water-Oil Emulsion using Nanodemulsifier coupled with Thermal Treatment"* under my supervision for the partial fulfillment of the required degree of **"Master of Science in Chemistry".** He has worked diligently, and methodically and also collected the literature very sincerely. During this project work he has learnt about various aspects of chemical science to the entitled topic.

To the best of my knowledge, the work presented is original and has not been submitted anywhere. I wish him every success in the future.

Date:

Place: **Bilaspur, C.G**

Signature of the Guide

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. Goutam Kumar Patra

Professor and H.O.D

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, India

FORWARDING CERTIFICATE

This is to certify that **Swaraj Shreechandan Sahu** has completed the project work entitled *"Separation of Water-Oil Emulsion using Nanodemulsifier coupled with Thermal Treatment"* under the supervision of **Dr. Sunil Kumar Singh**, for the partial fulfillment of the required degree of **"Master of Science in Chemistry".**

I wish him every success in his future life.

Date: 04-09-24

Place: **Bilaspur, C.G**

Signature of the HOD

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

Direct Friedel-Craft Alkylation of Arene with Alcohols using $[AcMIm]_2ZnCl_4$

A project submitted to

Guru Ghasidas Vishvavidyalaya ,Bilaspur (C.G.)

In partial fulfillment
For the award of the degree
of
Master of science
in
Chemistry
by

SWARNIKA PANDEY
Under the guidance of
Dr. Subhash Banerjee

Research center
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,Bilaspur (C.G.)

August 2024

09/09/24

FORWARDING CERTIFICATE

This is to certify that **Miss. Swarnika Pandey** has carried out the project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic *'Direct Friedel-Craft Alkylation of Arene with Alcohols using $[AcMIm]_2ZnCl_4$'* This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish her every success in her life.

Signature of HOD

Dr. Goutam Kumar Patra

Professor

Department of Chemistry , G.G.V. Bilaspur (C.G.)

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A

LITERATURE BASED PROJECT REPORT

ON

ELECTROCHEMICAL SENSING OF SEROTONIN IN FOOD PRODUCT BY USING MODIFIED ELECTRODE

SUBMITTED FOR

PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN CHEMISTRY

Session 2022-2024

GUIDED BY

Dr. Uday Pratap Azad

Assistant Professor

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA

SUBMITTED BY

Ms. Swati Kamde

M.Sc. IV Semester

Roll No. 22104159

Enroll. No. GGV/22/07255

DEPARTMENT OF CHEMISTRTY

GURU GHASIDAS VISHWAVIDYALAYA, Bilaspur (C.G).495009,India

FORWARDING CERETIFICATE

This is to certify that **Ms. Swati kamde** has carried out project work in the department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur C.G. on the topic **'ELECTROCHEMICAL SENSING OF SERETONIN IN FOOD PRODUCT BY USING MODIFIED ELECTROD'**. This project is submitted as a partial fulfillment for the degree of M.Sc in chemistry and forwarded to the examiner for evalution.

PROF. G K PATRA

Head, of Department

Department of chemistry

Guru Ghasidas Vishwavidyalaya

BILASPUR (C.G.)

Head
Deptt. of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur 495009 (C.G.)

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Literature Review on Green synthesis of Nanoparticles

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science

in

Chemistry

Submitted by

Takeshwar Sahu

Supervisor

Prof. Manorama

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Manorama

Professor

M.Sc., Phd, B.H.U.

Department of Chemistry

Guru Ghasidas University

Bilaspur-495009, CG, India

Ref. No.

Bilaspur, Date:

CERTIFICATE

This is to certify that ***Takeshwar Sahu*** *has completed the project work entitled* ***"Literature Review on Green synthesis of Nanoparticles"*** *under my supervision for the partial fulfillment of required degree of* ***"Master of Science"****.*

I wish his every success in the future life.

Date: 4/9/24

Place: Bilaspur

Signature

04/9/24

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra

Professor & Head

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Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Takeshwar Sahu*** *has completed the project work entitled* ***"Literature Review on Green synthesis of Nanoparticles"*** *under the supervision of* ***Prof. Manorama****, for the partial fulfillment of required degree of* ***"Master of Science"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 4/9/24

Head

Place: Bilaspur

Signature of the

Head / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
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