



Department : Chemistry		
Academic Year : 2021-21		
Sr. No.	Programme Code	Name of the Programme
01.	312	M. Sc.

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Field Project/Industrial Training for the academic session 2021-22

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Signature and Seal of the Head

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Bilaspur 495009 (C.G.)



A

Literature-Based Project Report

On

**HETEROCYCLIC COMPOUNDS OF CHALCONES AND
THEIR APPLICATIONS**



Submitted for

*Partial Fulfilment of the Requirement for the Degree of
Master of Science in Chemistry*

Session- 2022

Under the supervision of

Dr. V. K. Rai

Assistant professor

And guidance of

Dr. Bhaskar Sharma

Assistant professor

Submitted By

AARTI RAJPUT

Roll no. - 20410001

GGV/20/07201

MSc IV Chemistry

DEPARTMENT OF CHEMISTRY

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

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



DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established by Central Universities Act 2009 No. 25 of 2009)



CERTIFICATE

This is to certify that AARTI RAJPUT has carried out this literature survey-based project under our supervision and guidance in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic “**HETEROCYCLIC COMPOUNDS OF CHALCONES AND THEIR APPLICATION**”

She has worked diligently, methodically, and collected the literature sincerely and carefully. During this project work, she has learnt about various organic transformations and new synthetic techniques related to the entitled topics.

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

Supervision by

Dr. V. K. Rai

Assistant Professor
Department of Chemistry

Guided by

Dr. Bhaskar Sharma

Assistant Professor
Department of Chemistry

Guru Ghasidas Vishwavidyalaya 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 **AARTI RAJPUT** has carried out this literature survey-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic “**HETEROCYCLIC COMPOUNDS OF CHALCONES AND THEIR APPLICATIONS**”. This project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Organic Chemistry and forwarded to the examiner for evaluation.

I wish her every success in her life.

Date – 13/09/22
Place – Bilaspur (CG)

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)
13.09.22
Prof. Gautam Kumar Patra
Head, Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
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DECLARATION

I hereby declare that the literature-based review work presented in the project entitled “**HETEROCYCLIC COMPOUNDS OF CHALCONES AND THEIR APPLICATIONS**” submitted as partial fulfilment of M.Sc. in Organic Chemistry has been performed by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of **Dr. V. K. Rai** and the guidance of **Dr. Bhaskar Sharma sir**.

The work presented in the project dissertation is original and will remain the intellectual property of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Date: 13/09/2022
Place: Bilaspur (C.G.)

आरती राजपूत
AARTI RAJPUT
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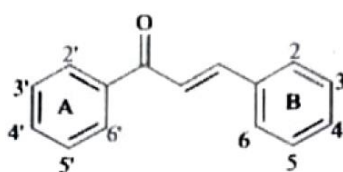


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1. INTRODUCTION

Chalcones are α , β -unsaturated ketones (trans-1,3-diaryl-2-propen-1-ones), consisting of two aromatic rings (A and B) attached by α , β -unsaturated carbonyl system with a variety of substituents. Many heterocycles of biological importance, such as 1,4-diketones, benzothiazepine, flavones, and pyrazolines, can be synthesized using chalcones as key precursors.^[1]



Chalcone

The heterocyclic chalcones have a heteroaryl which contains oxygen, sulfur, or nitrogen.^[8,9]

Chalcones and their derivatives of heterocyclic compounds have been studied mainly for their biological activities as anti-tumor, anti-inflammatory, anti-cancer, antioxidant, antibiotic, anti-malarial, anti-protozoal, anti-HIV, and treatment of diabetes. Due to these activities, this class of compounds has a wide application in the pharmaceutical industry.^[12,13]

The heterocyclic chalcones due to their pharmacological activities, which are attributed to the structural aspects of these molecules, especially

- (i) The unsaturated bond between the aliphatic carbons;
- (ii) The ketone group; and
- (iii) The presence of heteroatoms.^[6,7,8]

For instance, compounds containing some nitrogen heterocycles, such as pyrazole, benzimidazole, and triazole have been reported to possess antiproliferative, anti-inflammatory, kinase inhibitory, antimicrobial, and anticancer properties.^[15]

Meanwhile, oxygen as well as sulfur-containing heterocycles, such as benzofuran, benzopyran, and benzo-thiophene derivatives, have therapeutics potential as antitubercular, antibacterial, antioxidant, cytotoxic, and anti-cancer.^[16]

Widespread benefits of organic compounds containing heterocyclic moieties, influence the synthesis of chalcone derivatives.



Department of Chemistry
Guru Ghasidas vishwavidyalaya, Bilaspur
(C.G.)

**M.Sc. Project
Dissertation Report**

Submitted for Partial fulfillment of Masters in Chemistry

**Adsorptive Removal of Organic dye from
Eucalyptus sheathiana bark Ash: A Review**



**By - Abhinav Patel
Roll No.: 20410002**

**Supervisor:
Dr. Charu Arora
Department of Chemistry
Guru Ghasidas University
Bilaspur-495009 (C.G.)**



DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA,
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Central University Act 2009) BILASPUR (C.G.) 495009

FORWARDING CERTIFICATE

This is to certify that the Dissertation entitled “**Adsorptive Removal of Organic dye from Eucalyptus sheathiana bark Ash: A Review**” is an authenticated record of review work done from April 2022 to August 2022 by **Abhinav Patel**, a student of M.Sc. Chemistry IVth semester, Department of Chemistry, GGV.

The work presented in this dissertation is based on the literature survey and is submitted by her for the award of above-mentioned degree.

Patel
13.03.22
Head, Department of
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Department of Chemistry
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Department Of Chemistry
Guru Ghasidas Vishwavidyalaya,
(A Central University Established by the
Central University Act 2009) Bilaspur (C.G) 495009

CERTIFICATE

This is to certify that **Abhinav Patel** has carried out her dissertation on
“**Adsorptive Removal of Organic dye from Eucalyptus sheathiana
bark Ash: A Review**”. The work presented in this dissertation is based
on the literature survey (review work) and is submitted by him for the
award of M.Sc. in Chemistry.

Chauhan
(Supervisor)



DECLARATION

I hereby declare that the work presented in the dissertation entitled-“**Adsorptive Removal of Organic dye from Eucalyptus sheathiana bark Ash: A Review**” is submitted in partial fulfillment of M.Sc. Chemistry was carried out by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

The work presented in this project dissertation is a review work based on the literature survey. The information presented in the dissertation report including data, figures and pictures is representative of the available literature collected by me.

DATE -:08/09/2022

ABHINAV PATEL

Place -: Bilaspur




ACKNOWLEDGEMENT

I express my gratitude and sincere thanks to my parents and family, for their understanding, constant support, and encouragement which helped me a lot to work more efficiently during crucial times of the completion of the project.

I express sincere thanks to the Head of the Department, for providing facilities that enable me to complete my work successfully and most importantly for always being a source of inspiration throughout my work.

I take this golden opportunity to express my gratitude and sincere thanks to my respected guide **Dr. Charu Arora, Assistant Professor**, Department of Chemistry, GGU, Bilaspur for his guidance, constant encouragement, and support which boosted me with confidence and I am proud to say that it has been a most fruitful and enjoyable experience to work under his guidance.

I am also thankful to all the professors including Ph.D. scholars for their help in making this project a successful one. Also special thanks to my friends and classmates for sharing their valuable assistance.


ABHINAV PATEL



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GURU GHASIDAS VISHWAVIDYALAYA BILASPUR, C.G.



SESSION: 2021-2022

PROJECT ON A REVIEW ON SCHIFF BASES AND THERE APPLICATIONS

Submission for

Partial Fulfillment of Master of Science in Chemistry

CHEMISTRY HONORS

SUPERVISED BY

Dr Sunil Kumar Singh
Associate Professor,
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Bilaspur, C.G.

SUBMITTED BY

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Master of Science,
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Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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Forwarding Certificate

This is to certify that Mr. Bikash Chandra Ratha has carried out review project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "A Review On Schiff Bases And There Applications". This project is Submitted for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

Prof. Goutam Kumar Patra

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



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

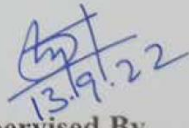
(A Central University Established by Central University Act 2009 No. 25 of 2009)

Certificate

This is to certify that Mr. Bikash Chandra Ratha has carried out project on the topic "A Review On Schiff Bases And There Applications" in the Department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under my supervision.

He has worked diligently, meticulously and methodically and collected the literature very sincerely and carefully. During this project work he has learnt about different types of organic synthesis.

To the best of my knowledge the work presented in this project is original and not submitted anywhere. I recommend the project report to be forwarded to the respective examiners for Evaluation. I wish him all the success in his carrier and life.


13.9.22
Supervised By

Dr Sunil Kumar Singh

Associate Professor,
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, C.G.



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

Declaration

I hereby declare that the literature report presented in this project entitled "A Review On Schiff Bases And There Applications" for the degree of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under supervision of Dr. S.K. Singh.

The work presented in this project Dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

Date: 13/09/2022

Place: Bilaspur

Bikash Chandra Ratha

Bikash Chandra Ratha



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Guru Ghasidas Vishwavidyalaya

(A Central University)



Bilaspur , Chhattisgarh

A Review Project Report On

“Synthesis And Application Of Calix[4]Arene As Green Catalyst”

As Partial Fulfilment for the Degree of ‘M.Sc. in Chemistry’

For Session 2021-22

Guided By

Dr. S.K.Singh Sir

Associate Professor

Department Of Chemistry

Guru Ghasidas Vishwavidyalaya

Submitted By

Saumy Sharma

M.Sc. 4th Semester

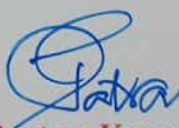
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Forwarding Certificate

This is to certify that Mr. Saumy Sharma has carried out review project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Synthesis and study the Application of *p*- sulfonic acid calix[4]arene as Green Catalyst". This project is Submitted for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.


13.09.22
Prof. Goutam Kumar Patra
Head of Department,
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Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

Certificate

This is to certify that Mr. Saumy Sharma has carried out project on the topic "Synthesis and study the Application of *p*- sulfonic acid calix[4]arene as Green Catalyst" (A Review Work) in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under my supervision.

He has worked diligently, meticulously and methodically and collected the literature very sincerely and carefully. During this project work he has learnt about different types of organic synthesis.

To the best of my knowledge the work presented in this project is original and not submitted anywhere. I recommend the project report to be forwarded to the respective examiners for Evaluation. I wish him all the success in his carrier and life.


Supervised By

Dr. Sunil Kumar Singh

Associate Professor,

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

Declaration

I hereby declare that the literature report presented in this project entitled “Synthesis and study the Application of *p*- sulfonic acid calix[4]arene as Green Catalyst” (A Review Work) for the degree of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under supervision of Dr. S.K. Singh Sir.

The work presented in this project Dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

Date:

Place: Bilaspur

Saumy Sharma



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A
PROJECT REPORT
ON
WATER POLLUTION BY SURFACE ACTIVE AGENT
(A REVIEW WORK)

A DISSERTATION REPORT PREPARED
FOR THE PARTIAL FULFILLMENT OF THE DEGREE
OF
MASTER OF SCIENCE
IN
CHEMISTRY
2020-2022



SUBMITTED BY
CHITRESH KUMAR BARETH
MASTER OF SCIENCE
CHEMISTRY
4th SEMESTER

UNDER THE GUIDANCE OF
DR. SUNIL KUMAR SINGH
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गुरु घासीदास विश्वविद्यालय
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Forwarding Certificate

This is to certify that Mr. Chitresh Kumar Bareth carried out review project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "WATER POLLUTION BY SURFACE ACTIVE AGENT(A REVIEW WORK)". This project is Submitted for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

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Head of Department,
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रसायन शास्त्र विभाग
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Department of Chemistry

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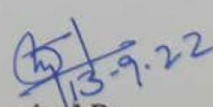
(A Central University Established by Central University Act 2009 No. 25 of 2009)

Certificate

This is to certify that Mr. Chitresh Kumar Bareth has carried out project on the topic "WATER POLLUTION BY SURFACE ACTIVE AGENT(A REVIEW WORK)" in the Department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under my supervision.

He has worked diligently, meticulously and methodically and collected the literature very sincerely and carefully. During this project work he has learnt about different types of organic synthesis.

To the best of my knowledge the work presented in this project is original and not submitted anywhere. I recommend the project report to be forwarded to the respective examiners for Evaluation. I wish him all the success in his carrier and life.


Supervised By

Dr Sunil Kumar Singh

Associate Professor,

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Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

Declaration

I hereby declare that the literature report presented in this project entitled "WATER POLLUTION BY SURFACE ACTIVE AGENT(A REVIEW WORK)" for the degree of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under supervision of Dr. S.K. Singh.

The work presented in this project Dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

Date: 13/09/2022

Place: Bilaspur

Chitresh

Chitresh Kumar Bareth



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**CHALCONE SYNTHESIS AND ITS USAGE-
(REVIEW BASED PROJECT)**

A DISSERTATION REPORT PREPARED
FOR THE PARTIAL FULFILLMENT OF THE DEGREE
OF
MASTER OF SCIENCE
IN
CHEMISTRY



By

SRISHTISHREE MAHAPATRA

GGV/17/7197

Roll-20410049

Under the supervision of

Dr. VIJAI K. RAI

(Assistant Professor)

And guidance of

Dr. S.K. Singh

(Associate Professor)

**DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDAYALAYA
BILASPUR- 495009 (C.G)**

2022



CERTIFICATE

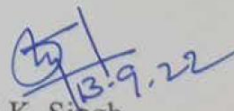
This is to certify that this dissertation entitled “**Chalcone synthesis and its usage-(review-based project.)**” is based on the original study conducted by **Miss. Srishtishree Mahapatra** with sincere and active interest.

This is a partial fulfillment of the requirements for the award of “Masters of Science” in the department of Chemistry from Guru Ghasidas University.

None of this review work presented in this dissertation has been submitted to any other university or institution for the award of any degree or otherwise to the best of our knowledge.


Dr G.K. PATRA

HEAD OF DEPARTMENT
GGV, BILASPUR


Dr S.K. Singh
ASSOCIATE PROFESSOR

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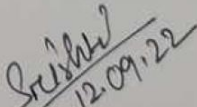
DECLARATION

I hereby declare that the work presented in this project review entitled "Chalcone Synthesis and its usage-(review-based project.)" submitted for the partial fulfillment of M.Sc. Chemistry 4th semester is carried out by me at Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G).

The work presented in this project review is original and will remain the intellectual property of the department of Botany, Guru Ghasidas Vishwavidyalaya Bilaspur (C.G). The information presented in the review report including data, figure, and pictures are duly credited. If any discrepancy, mistake, or plagiarism found in the report, the responsibility for the same will be solely mine.

Date: 12/09/2022

Place: Bilaspur


12.09.22
Srishtishree Mahapatra

M.Sc. 4th Semester
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G)



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गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



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(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
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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 Literature Based Project Report

On

“Synthesis of Silver and Gold Nanoparticles using Plant Extracts”

Master of Science IV Semester

Session : 2021 – 2022

SUPERVISED BY

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

KALPANA TIDKE

M.Sc. IV SEMESTER

ROLL NO. 20410023



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 **KALPANA TIDKE** has carried out this literature survey based project under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**Synthesis of Silver and Gold Nanoparticles using Plant Extracts**".

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

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 to be forwarded to the respective examiners for evaluation. I wish very success in her career and life.

(Signature of Guide)

Dr. BHASKAR SHARMA

ASSISTANT PROFESSOR

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

KALPANA TIDKE

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
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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)

FORWARDING CERTIFICATE

This is to Certify that the project work entitled “**Synthesis of Silver and Gold Nanoparticles using Plant Extracts**” Submitted by 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 her life.

(Signature of H.O.D.)

Dr. G.K. PATRA

HEAD

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

KALPANA TIDKE

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya



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A
Project Report
ON

Synthesis of Tri-Aryl Pyridine Derivatives Using Task-Specific Acidic Ionic Liquid

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

Session: 2021-2022

SUPERVISED BY
Dr. Subhash Banerjee
Assistant Professor
Department of Chemistry

SUBMITTED BY
Sameera Kheti
Roll no. 20410040
Enroll No. GGV/20/07212



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

FORWARDING CERTIFICATE

This is to certify that **Sameera Kheta** has carried out this project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "**Synthesis of Tri-Aryl Pyridine Derivatives Using Task-Specific Acidic Ionic Liquid**". 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.


Prof. Goutam K. Patra

Head, Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur, CG



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

CERTIFICATE

This is to certify that **Sameera Kheti** has carried out this project under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**Synthesis of Tri-Aryl Pyridine Derivatives Using Task-Specific Acidic Ionic Liquid**".

He has worked diligently, methodically and also collected the literature very sincerely and carefully. During this project work he has learnt about various organic syntheses related 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 recommend the project report to be forwarded to the respective examiners for evaluation.

I wish every success in his career and life.

Sameera Kheti
13.09.22

SUBMITTED BY
Sameera Kheti
M.Sc. Chemistry
Roll No. 20410040
Enroll No. GGV/20/07212

Dr. Subhash Banerjee
13/09/22

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

DECLARATION

I hereby declare that the report presented in this project entitled "**Synthesis of Tri-Aryl Pyridine Derivatives Using Task-Specific Acidic Ionic Liquid**" submitted as partial fulfillment of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of Dr. Subhash Banerjee.

The work presented in the project dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Sameera Kheta

Date: 13.09.22
Place: Bilaspur

SAMEERA KHETI
M. Sc. IV Semester
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Roll no. 20410040



ACKNOWLEDGEMENT

I owe a great many thanks to a great many people who helped and supported me during the writing of this paper.

I am extremely indebted to **Dr. Subhash Banerjee, Assistant Professor, Department of Chemistry, GGV, Bilaspur** without whose kind guidance and support, I would not have completed my semester project successfully. He was instrumental in assigning me this work; he provided all the required resources and ensured by all means that I come up with valid results. I would like to express my special thanks of gratitude to my mentor **Miss Geetika Patel and Mr. Ashok Raj Patel** for their support in completing my project.

Then I wish to thank **Prof. Goutam K Patra, Head of Department, Department of Chemistry, GGV**, for allowing me to carry out this project as a part of my course M.Sc. Chemistry at his department.

Sameera Kheti
13.09.22

Sameera Kheti
M.Sc. IV Semester
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G), 495009, INDIA



A

Project Report

ON

*VISIBLE LED LIGHT DRIVEN SYNTHESIS
OF BIS COUMARIN DERIVATIVES
UNDERCATALYST-FREE CONDITIONS*

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

SESSION: 2021-2022

SUPERVISED BY
Dr. Subhash Banerjee
Assistant Professor
Department of Chemistry

SUBMITTED BY
Gargee Rathore
Roll no. 20410018
Enroll. No. GGV/17/7165



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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 **Gargee Rathore** has carried out this project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "**Visible LED light driven synthesis of Bis coumarin derivatives under catalyst free conditions**". 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 her life.

Prof. Gautam Kumar Patra

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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



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

CERTIFICATE

This is to certify that **Gargee Rathore** has carried out this project under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**Visible LED light driven synthesis of Bis coumarin derivatives under catalyst free conditions**".

She has worked diligently, methodically and also collected the literature very sincerely and carefully. During this project work she has learnt about various organic syntheses related 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 recommend the project report to be forwarded to the respective examiners for evaluation. I wish every success in her career and life.


SUBMITTED BY 13/09/2022

Gargee Rathore
M.Sc. Chemistry
Roll No. 20410018
Enroll No. GGV/17/7165


SUPERVISED BY

Dr. Subhash Banerjee
Assistant Professor
Department of Chemistry
GGV Bilaspur (C.G.)



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

DECLARATION

I hereby declare that the report presented in this project entitled **“Visible LED light driven synthesis of Bis coumarin derivatives under catalyst free conditions”** submitted as partial fulfillment of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of Dr. Subhash Banerjee.

The work presented in the project dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Date:

13/09/2022

Place: Bilaspur

Gargee Rathore

M. Sc. Chemistry 4th Semester
(2021-2022)

Enroll no. GGV/17/7165

Roll no. 20410018



ACKNOWLEDGEMENT

I owe a great many thanks to a great many people who helped and supported me during the writing of this paper.

I am extremely indebted to **Dr. Subhash Banerjee, Assistant Professor, Department of Chemistry, GGV, Bilaspur** without whose kind guidance and support, I would not have completed my semester project successfully. He was instrumental in assigning me this work; he provided all the required resources and ensured by all means that I come up with valid results. I would like to express my special thanks of gratitude to my mentor **Miss Geetika Patel** and **Mr. Ashok Raj Patel** for their support in completing my project.

Then I wish to thank **Prof. Goutam Kumar Patra, Head of Department, Department of Chemistry, GGV**, for allowing me to carry out this project as a part of my course M.Sc. Chemistry at his department.

Gargee Rathore
M.Sc. Chemistry
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G), 495009, INDIA



A
Project Report
ON

Cobaltide Catalyzed Synthesis Of Benzothiazole

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

Session: 2021-2022

SUPERVISED BY:

Dr. Subhash Banerjee
Assistant Professor
Department of Chemistry

SUBMITTED BY:

Parimal Sao
Roll no. 20410034
Enroll No. GGV/17/7156



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

FORWARDING CERTIFICATE

This is to certify that **Parimal Sao** has carried out this project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "**Cobaltide Catalyzed Synthesis of Benzothiazole**". 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.

Prof. Goutam K. Patra

Head, Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, CG

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



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

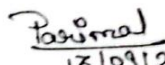
CERTIFICATE


This is to certify that **Parimal Sao** has carried out this project under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**Cobaltide Catalyzed Synthesis of Benzothiazole**".

He has worked diligently, methodically and also collected the literature very sincerely and carefully. During this project work he has learnt about various organic syntheses related 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 recommend the project report to be forwarded to the respective examiners for evaluation.

I wish every success in his career and life.


18103122
SUBMITTED BY:
Parimal Sao
M.Sc. Chemistry
Roll No. 20410034
Enroll No. GGV/17/7156


SUPERVISED BY:
Dr. Subhash Banerjee
Assistant Professor
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GGV Bilaspur (C.G.)



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

DECLARATION

I hereby declare that the report presented in this project entitled "**Cobaltide Catalyzed Synthesis of Benzothiazole**" submitted as partial fulfillment of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of Dr. Subhash Banerjee.

The work presented in the project dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Date: 13/03/22
Place: Bilaspur

Parimal
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ACKNOWLEDGEMENT

I owe a great many thanks to a great many people who helped and supported me during the writing of this paper.

I am extremely indebted to Dr. Subhash Banerjee, Assistant Professor, Department of Chemistry, GGV, Bilaspur without whose kind guidance and support, I would not have completed my semester project successfully. He was instrumental in assigning me this work; he provided all the required resources and ensured by all means that I come up with valid results. I would like to express my special thanks of gratitude to my mentor Miss Geetika Patel and Mr. Ashok Raj Patel for their support in completing my project.

Then I wish to thank Dr. Goutam K Patra, Head of Department, Department of Chemistry, GGV, for allowing me to carry out this project as a part of my course M.Sc. Chemistry at his department.

Parimal
13/09/22

Parimal Sao
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DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR, C.G. (A CENTRAL UNIVERSITY)



DECLARATION

I hereby declare that the project work presented in this dissertation entitled **“CARBENE BASED PINCER LIGANDS”** have been done by me under the guidance of **Dr. SURYABHAN SINGH** (Professor), GGV, Bilaspur, C.G.

ASMITA SAO

(M.Sc. Inorganic Chemistry, IVth Semester)
GURUGHASIDAS VISHWAVIDYALAYA
(A CENTRAL UNIVERSITY)
BILASPUR, CG



Dr. SURYABHAN SINGH
ASST.PROFESSOR,
DEPARTMENT OF CHEMISTRY
Guru Ghasidas Vishwavidyalaya,
Bilaspur, C.G. (A central University)



CERTIFICATE

This is to certify that **ASMITA SAO** (M.Sc. Inorganic Chemistry, 4th Semester) has been completed a project on "**CARBENE BASED PINCER LIGANDS**". This project is submitted for the partial fulfillment of required degree in chemistry.

I wish for her every success in the future.

Suryabhan Singh

Signature
DR. SURYABHAN SINGH
Asst. Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central University),
Bilaspur, C.G.



DR. GOUTAM KUMAR PATRA (HOD)

Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur [A Central university]



FORWARDING CERTIFICATE

This is to certify that **ASMITA SAO** (M.Sc. Inorganic Chemistry) has been completed a project on “**CARBENE BASED PINCER LIGANDS**” under the supervision of **Dr. SURYABHAN SINGH** This project work is submitted for the partial fulfillment of required degree in chemistry and forwarded to Examiner for evaluation.

I wish her every success in the future life.

 13/5/21

Signature
DR. GOUTAM KUMAR PATRA
HEAD OF DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
(A CENTRAL UNIVERSITY),
BILASPUR, C.G.



DEPARTMENT OF CHEMISTRY,
GURU GHASIDAS VISHWAVIDYALAYA,
[A CENTRAL UNIVERSITY]
BILASPUR, CG



ACKNOWLEDGEMENT

First of all, I would like to declare my feeling in the dignity of almighty that created me with his great immense and patience to achieve this milestone. I own my deep sense of admiration, incredible thanks from the bottom my heart to my guide and my inspiration **DR. SURYABHAN SINGH** (Professor) Department of Chemistry, GURU GHASIDAS VISHWAVIDYALAYA BILASPUR (C.G.) for his keen interest and extraordinary guidance, constructive criticism that contain the capacity of architect this project. I take this opportunity to express my sincere thanks for providing me a golden opportunity to work on this project and for his able guidance, co-operation and inspiration.

I am also thankful to Mr. Raju Meshram & Mr. D. K. Verma sir (Lab Assistant) Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) for providing chemicals which required in my project.

Finally, I gladly express my thanks to all those loving personalities who have directly or indirectly helped me in some way or other during the course of this project.

ASMITA SAO

(M.Sc. Inorganic Chemistry, IVth Semester)

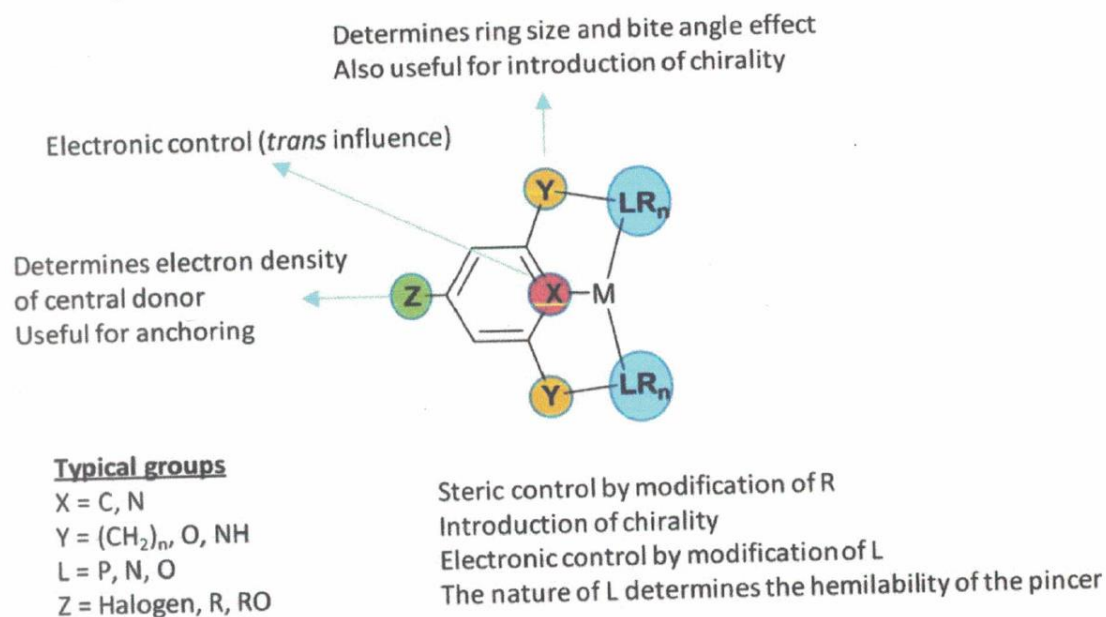


Carbene pincer Ligand

Introduction

As a type of coordination complex, transition metal pincer complexes consist of a pincer ligand and a transition metal. The pincer ligands bind tightly to three adjacent coplanar sites in a meridional configuration. They confer high thermal stability to the complexes they form due to the inflexibility of their pincer-metal interaction. This stability is in part ascribed to the constrained geometry of the pincer, which inhibits cyclometallation of the organic substituents on the donor sites at each end. In the absence of this effect, cyclometallation is often a significant deactivation process for complexes, in particular limiting their ability to effect C-H bond activation. The organic substituents also define a hydrophobic pocket around the reactive coordination site. Stoichiometric and catalytic applications of pincer complexes have been studied at an accelerating pace since the mid-1970s. Most pincer ligands contain phosphines. [3] Reactions of metal-pincer complexes are localized at three sites perpendicular to the plane of the pincer ligand, although in some cases one arm is hemi-labile and an additional coordination site is generated transiently. As early as the 1920s, anionic pincers were formed using carbanion as the central donor site and phosphine as flanking donors; PCP pincers were derived from

these compounds.



गुरु घासीदास विश्वविद्यालय
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Koni, Bilaspur - 495009 (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA,
BILASPUR, C.G., INDIA

METAL ORGANIC FRAMEWORKS

IN DRUG DELIVERY

A

PROJECT THESIS

SUBMITTED IN PARTIAL FULLFILLMENT OF THE

REQUIRMENT FOR THE

DEGREE OF

M.Sc. CHEMISTRY

SUBMITTED

BY

BATHU SHRUTHI

(ROLL NO. 20410009)

Under Supervision of

DR. SURYABHAN SINGH

DEPARTMENT OF CHEMISTRY,

GURU GHASIDAS VISHWAVIDYALAYA,

BILASPUR, C.G., INDIA



CERTIFICATE

This is to certify that **BATHU SHRUTHI** had carried out the project on the topic "**METAL ORGANIC FRAMEWORK IN DRUG DELIVERY**" in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. This project is submitted for the partial fulfillment of required degree in chemistry.

I wish her all the success in her carrier and life.

SUPERVISED BY

Dr. Suryabhan Singh

Asst. Professor

Dept. Of Chemistry

GGV, Bilaspur, C.G.



FORWARDING CERTIFICATE

This is to certify that **BATHU SHRUTHI** has carried out the project in the Department of chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, C.G. on the topic of "**METAL ORGANIC FRAMEWORK IN DRUG DELIVERY**". This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in chemistry and forwarded to examiner for evolution.

I wish her every success in her life.

PROF. PATRA GAUTAM

Head of department

Department of chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur, C.G., 495009, India



ACKNOWLEDGEMENT

I would like to express my earnest and deepest gratitude to, **DR. SURYABHAN SINGH**, faculty for chemistry department for giving me this opportunity to do a project on such a valuable topic of “**METAL ORGANIC FRAMEWORK IN DRUG DELIVERY**”. I am grateful for the assistance, guidance, and support that were extended during the course of excellent research.

I wish to acknowledge **PROF. PATRA GOUTAM** (Head of Department of Chemistry), Guru Ghasidas Vishwavidyalaya who gave me opportunity to undergo project work and his valuable suggestion.

I am also thankful to all the teachers, lab assistants, librarian, clerk of the chemistry department and the college administration for providing the resources necessary for the research work. I thank my parent and friends for their moral support and love throughout my research work and project preparation. Above all I thank the god almighty for blessing me with the health and vitality to complete this project.

Bathu Shruthi

BATHU SHRUTHI

ROLL NO. - 20410009

M.SC.-IV SEMESTER



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3. Drugs as organic linkers for MOFs
4. Functional Molecules as the Building Block
5. MOFs in various forms
6. MOF uses in various diseases
7. Conclusions
8. Reference



DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR
(A Central University Established by Central University Act, 2009
No 25 of 2009)



A
PROJECT REPORT
ON
"Cytochrome: Structure, Function and Properties-
A Brief Review"

Submitted in partial fulfilment of the requirements for the
Award of the degree of
"Master of Science in Chemistry"
(Session 2021-2022)

SUBMITTED BY

DEEPAK RATNAKAR

Roll No. - 20410017

Enroll No. - GGV/17/7162

M.Sc. - 4th Semester

UNDER THE GUIDANCE OF

DR. SURYABHAN SINGH

(Asst. Prof. of Chemistry Dept.)
Guru Ghasidas Central University,
Bilaspur (C.G.)



FORWARDING CERTIFICATE

This is to certify that **DEEPAK RATNAKAR** has carried out the project in the department of chemistry. Guru Ghasidas Vishwavidyalaya (A central University), Bilaspur (C.G.) on the topic "**Cytochrome: Structure, Function and Properties- A Brief Review**". This project is submitted for the requirement for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish him every success in his life.

Patra

HEAD OF DEPARTMENT

Prof. GOUTAM KUMAR PATRA

DEPARTMENT OF CHEMISTRY,
GURU GHASIDAS CENTRAL UNIVERSITY,
KONI, BILASPUR

अध्यक्ष / Head
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Bilaspur 495009 (C.G.)



DECLARATION

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. The work presentation in this project dissertation entitled "*Cytochrome : Structure, Function and Properties- A Brief Review*" submitted as partial fulfilment of M.Sc. chemistry was carried out at Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G). The work presented in this project dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Central University Bilaspur (C.G).



DEEPAK RATNAKAR

Roll.no-20410017

Date: 13/09/22



CERTIFICATE BY THE GUIDE

This is to certify that **DEEPAK RATNAKAR** has carried out the project in the department of chemistry. Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "*Cytochrome: Structure, Function and Properties- A Brief Review*" under my guidance.

He has worked diligently, meticulously and methodically.

To the best of our knowledge the work presented in this project is original and he has not been submitted anywhere.

I wish him all the success in his carrier and life.

(Signature of the Guide)

DR. SURYABHAN SINGH
(Asst. Prof. of Chemistry Dept.)
GGV Bilaspur (C.G.)



ACKNOWLEDGEMENT

I wish to express my sincere gratitude and indebtedness to **DR. SURYABHAN SINGH** Assistant Professor of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) for introducing the present topic and for his inspiring guidance, criticism and valuable suggestion throughout this project work.

I would like to express my gratitude to **Prof. GOUTAM KUMAR PATRA** (Head of Department) Guru Ghasidas Vishwavidyalaya, Bilaspur who gave me opportunity to undergo project work and his valuable suggestion during my M.Sc. 4th semester Chemistry course. I would like to thank all the teachers, librarian, and office staff of the Chemistry department. Big thanks to all my dear friends who are directly or indirectly helped me in completion of my project work.

Thanking you

Date: 13/09/22



GURU GHASIDAS VISHWAVIDYALAYA,
BILASPUR, C.G., INDIA

METAL ORGANIC FRAMEWORKS

AS CATALYST

A

PROJECT THESIS

SUBMITTED IN PARTIAL FULLFILLMENT OF THE

REQUIRMENT FOR THE

DEGREE OF

M.Sc. CHEMISTRY

SUBMITTED

BY

MALWIKA BAGHEL

(ROLL NO. 20410029)

Under Supervision of

DR. SURYABHAN SINGH

DEPARTMENT OF CHEMISTRY,

GURU GHASIDAS VISHWAVIDYALAYA,

BILASPUR, C.G., INDIA



DECLARATION

I, **MALWIKA BAGHEL**, M.Sc. Chemistry (IV Semester) of Guru Ghasidas Vishwavidyalaya do hereby declare that, this project is done by me. I am highly indebted to the authors of the books that I have referred in my project as well as all the writers of the reviews and the owners of the information taken from website for it. It is only because of their contribution and proper guidance of my faculty advisor **DR. SURYABHAN SINGH**, that I was able to gather light on the subject.

Malwika Baghel

ROLL NO. 20410029

M.SC. CHEMISTRY SEMESTER IV



CERTIFICATE

This is to certify that **MALWIKA BAGHEL** had carried out the project on the topic "**METAL ORGANIC FRAMEWORK AS CATALYST**" in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. This project is submitted for the partial fulfillment of required degree in chemistry.

I wish her all the success in her carrier and life.

SUPERVISED BY

Dr. Suryabhan Singh

Asst. Professor

Dept. Of Chemistry

GGV, Bilaspur, C.G.



FORWARDING CERTIFICATE

This is to certify that **MALWIKA BAGHEL** has carried out the project in the Department of chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, C.G. on the topic of "**METAL ORGANIC FRAMEWORK AS CATALYST**". This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in chemistry and forwarded to examiner for evolution.

I wish her every success in her life.


13/9/22

PROF. PATRA GAUTAM

Head of department

Department of chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur, C.G., 495009, India



ACKNOWLEDGEMENT

I would like to express my earnest and deepest gratitude to, **DR. SURYABHAN SINGH**, faculty for chemistry department for giving me this opportunity to do a project on such a valuable topic of "**METAL ORGANIC FRAMEWORK AS CATALYST**". I am grateful for the assistance, guidance, and support that were extended during the course of excellent research.

I wish to acknowledge **PROF. PATRA GOUTAM** (Head of Department of Chemistry), Guru Ghasidas Vishwavidyalaya who gave me opportunity to undergo project work and his valuable suggestion.

I am also thankful to all the teachers, lab assistants, librarian, clerk of the chemistry department and the college administration for providing the resources necessary for the research work. I thank my parent and friends for their moral support and love throughout my research work and project preparation. Above all I thank the god almighty for blessing me with the health and vitality to complete this project.

M. Baghel

MALWIKA BAGHEL

ROLL NO. - 20410029

M.SC.-IV SEMESTER

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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 Literature-Based Project Report

On

“SYNTHESIS OF EPOXIDES VIA GREEN CHEMISTRY”

Master of Science IV Semester

Session: 2021 – 2022

SUBMITTED TO

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

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M.Sc. IV SEMESTER

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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)

DECLARATION

This is to certify that I **PREETI BHAGAT** a student of (CHEMISTRY) of the department of chemistry session 2021-2022, **Roll No. 20410037** have carried out a project entitled "**SYNTHESIS OF EPOXIDES VIA GREEN CHEMISTRY**" Under the guidance of **Dr. BHASKAR SHARMA** from the Department of Chemistry, GGV Bilaspur (C.G.). This is an original work carried by me and the report has not been submitted to any other University for the award of any Degree or Diploma.

Date :

Place : Bilaspur

A handwritten signature in purple ink that reads "Preeti." followed by a period.

(Signature of Student)

PREETI BHAGAT



DEPARTMENT OF CHEMISTRY

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

CERTIFICATE OF THE GUIDE

This is to Certify that **PREETI BHAGAT** has carried out this literature survey-based project under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**SYNTHESIS OF EPOXIDES VIA GREEN CHEMISTRY**".

She has worked diligently, methodically and also collected the literature very sincerely and carefully. During this project work, she has learned about various organic 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. BHASKAR SHARMA

ASSISTANT PROFESSOR

(DEPARTMENT OF CHEMISTRY)

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PREETI BHAGAT



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 EPOXIDES VIA GREEN CHEMISTRY"** 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.

Head
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
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G.K. Patra
13-09-22
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Prof. G.K. PATRA

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(Signature of Student)

PREETI BHAGAT



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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 Literature-Based Project Report

On

“PALLADIUM NANOPARTICLE AND ITS APPLICATION”

Master of Science IV Semester

Session: 2021 – 2022

SUPERVISED BY

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

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SUBMITTED BY

RENU SAHU

M.Sc. IV SEMESTER

ROLL NO. 20410038



DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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DECLARATION

This is to certify that I **RENU SAHU** a student of the department of chemistry session 2021-2022, Roll No. **20410038**, have carried out a project entitled "**PALLADIUM NANOPARTICLE AND ITS APPLICATION**" Under the guidance of **Dr. BHASKAR SHARMA**, Department of Chemistry, GGV Bilaspur (C.G.). This is an original work carried by me and the report has not been submitted to any other University for the award of any Degree or Diploma.

Date :

Place : Bilaspur


(Signature of Student)

RENU SAHU



DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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This is to Certify that **RENU SAHU** has carried out this literature-based survey under my supervision in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "**PALLADIUM NANOPARTICLE AND ITS APPLICATION**".

She has worked diligently, and methodically and also collected the literature very sincerely and carefully. During this project work, she has learnt about various organic 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. BHASKAR SHARMA

ASSISTANT PROFESSOR

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

RENU SAHU

गुरु घासीदास विश्वविद्यालय
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FORWARDING CERTIFICATE

This is to Certify that the project work entitled "**PALLADIUM NANOPARTICLE 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.

Patra
13.9.22

Head
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(Signature of H.D.D.)

Dr. G.K. PATRA

HEAD

(DEPARTMENT OF CHEMISTRY)

Renu
(Signature of Student)

RENU SAHU



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A

Project Report

On

ADSORPTIVE REMOVAL OF CRYSTAL VIOLET BY

ACACIA NILOTICA SEED ASH

In partial fulfilment degree of

M.Sc. Chemistry IV Semester

(Session: 2022)



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

**SUBMITTED TO -
Dr. CHARU ARORA**

Associate Professor

Department of chemistry

GGU Bilaspur (C.G)

**SUBMITTED BY -
VARTIKA THAWAIT**

Roll No. 20410055

GGV/17/7200



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FORWARDING CERTIFICATE

This is to certify that **VARTIKA THAWAIT** has carried out post-graduation dissertation project work on “**ADSORPTIVE REMOVAL OF CRYSTAL VIOLET BY ACACIA NILOTICA SEED ASH**” under the supervision of **DR. CHARU ARORA**. This project work is submitted for the partial fulfilment of the required degree in chemistry and forwarded to the examiner for evaluation.

Patra 18.09.22
HEAD OF DEPARTMENT

PROF. G.K. PATRA

DEPARTMENT OF CHEMISTRY

GGV BILASPUR (C.G.)

Head
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Guru Ghasidas Vishwavidyalaya
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Department of Chemistry

Guru Ghashidas Vishwavidyalaya, Bilaspur (C.G.) 495009 [INDIA]

(A Central University established by the Act of Parliament 2009 No. 25 of 2009)

CERTIFICATE

This is to certify that **VARTIKA THAWAIT** has carried out the project in the department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) on the topic "ADSORPTIVE REMOVAL OF CRYSTAL VIOLET BY ACACIA NILOTICA SEED ASH" under my supervision.

She has worked diligently, meticulously, and methodically.

To the best of our knowledge the work presented in this project is original and has not been submitted anywhere.

I wish her all the success in her carrier and life.

SUPERVISOR

Charu Arora
13.9.22
Dr. Charu Arora

(Department of Chemistry)



DECLARATION

I hereby declare that the work presented in the project dissertation entitled "ADSORPTIVE REMOVAL OF CRYSTAL VIOLET BY ACACIA NILOTICA SEED ASH" submitted in the partial fulfilment of M.Sc. Chemistry IV semester under PG programme was carried out by me at Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

The work presented in the project dissertation is original and will be intellectual property of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.). The information presented in the dissertation report including data, figure and picture are original or duly credited. If any discrepancy, mistake or plagiarism is found in the report, the responsibility for the same will be solely mine.

Place - Bilaspur

Vartika

VARTIKA THAWAIT



ACKNOWLEDGEMENTS

It is matter of great privilege for me to express my deep sense of gratitude towards all those who have directly enlightened me with their knowledge and help me in successful completion of my work.

I would like to express my deep sense of gratitude to **Prof. G.K.Patra**, Head of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, for granting permission and providing me with an environment to complete my project successfully.

I take this golden opportunity to express my thanks to my dissertation supervisor **Dr. Charu Arora** Associate Professor, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur for her constant invaluable guidance, encouragement and support which lead to the successful completion of the project.

I would also like to thanks all the faculty members and laboratory staff of this department for support and guidance whenever needed. Also special thanks to all my classmates.

Finally, yet importantly, I take this opportunity to express my gratitude and love to my parents and beloved family members, for their understanding, kind support and encouragement to do my work efficiently during the crucial times of the completion of the project.

Vartika

VARTIKA THAWAIT



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Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)

A
PROJECT REPORT
ON

"SYNTHESIS AND CHARACTERIZATION OF
COPPER-COPPER OXIDE NANOPARTICLES
AND ITS POLYMERIC NANOCOMPOSITES
USED IN PHOTODEGRADATION OF DYES"

Submitted in partial fulfilment for the Award of degree of

M.Sc. CHEMISTRY



2021-2022

SUBMITTED BY:
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ENROLLMENT NO. : GGV/17/7168

SUPERVISOR:
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DEPARTMENT OF CHEMISTRY
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CERTIFICATE



This is to certify that **ISHA GUPTA (M.Sc. Chemistry IVth Semester)** has submitted the project report entitled "**SYNTHESIS AND CHARACTERIZATION OF COPPER-COPPER OXIDE NANOPARTICLES AND ITS POLYMERIC NANOCOMPOSITE USED IN PHOTODEGRADATION OF DYES**" for partial fulfillment of requirement of M.Sc. Chemistry.

I hereby recommend to forward the project report to the University for the Award of M.Sc. Chemistry during the academic 2021-2022.

I wish her every success in her future..


13/01/2022
SUPERVISOR

Dr. ARTI SRIVASTAVA
ASST. PROFESSOR
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GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR (C .G.) INDIA

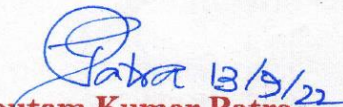


FORWARDING



Miss Isha Gupta has completed her project entitled
"SYNTHESIS AND CHARACTERIZATION OF COPPER-COPPER OXIDE
NANOPARTICLES AND ITS POLYMERIC NANOCOMPOSITE USED IN
PHOTODEGRADATION OF DYES" under the supervision and guidance
of **Dr. Arti Srivastava** in partial fulfillment for degree of M.Sc. in
Chemistry.

I wish her every success in her future life.


Prof. Goutam Kumar Patra

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



DECLARATION



I hereby declare that the report presented in this dissertation entitled "SYNTHESIS AND CHARACTERIZATION OF COPPER-COPPER OXIDE NANOPARTICLES AND ITS POLYMERIC NANOCOMPOSITE USED IN PHOTODEGRADATION OF DYES" has been done by me.


13/09/2022
STUDENT

MISS ISHA GUPTA
M.Sc. CHEMISTRY IVth SEM
ROLL NO. - 20410021
ENROLLMENT NO. : GGV/17/7168


13/09/22
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BILASPUR (C .G.) INDIA



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**GURU GHASIDAS VISHWAVIDYALAYA,
BILASPUR**

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

DEPARTMENT OF CHEMISTRY

A
PROJECT
ON

**“DYANAMIC CROSS LINKING OF POLYACRYLAMIDE
SODIUM ALGINATE BASED HYDROGEL”**

**MASTER OF SCIENCE
(4TH SEM)**

SESSION-2021-22

Guided

Dr. ARTI SRIVASTAVA

Assistant professor
Department Of chemistry
Guru Ghasidas Vishwavidyalaya
Central University
Bilaspur (C.G.)

Submitted

AMISHA SAHU

Roll No. - 20410005
Enrollment no-GGV/17/7019



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

CERTIFICATE

This is to certify that Amisha Sahu (M. Sc 4th semester) has submitted the project report entitled “Dynamic crosslinking of polyacrylamide sodium alginate based hydrogel” or partial fulfillment of requirement of M.Sc. Chemistry.

I hereby recommend to forward the project report to the University for the Award of M.Sc. Chemistry during the academic 2021-2022.

I wish her every success in her future life.


SUPERVISOR

Dr. ARTI SRIVASTAVA
ASST. PROFESSOR
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BILASPUR (C .G.)
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Department of Chemistry
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)
(A Central University Established By Central Universities Act 2009 No.
25 of 2009)

FORWARDING CERTIFICATE

Mis. Amisha Sahu has completed his project entitle "Dynamic crosslinking of polyacrylamide sodium alginate based hydrogel" under the supervision and guidance of Dr. Arti Srivastava in partial fulfillment for degree of M.Sc. in Chemistry.

I wish her every success in her future life.

Patra 13/9/22

Dr. GOUTAM KUMAR PATRA

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

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

DECLARATION

I hereby declare that the work present in the project entitled
“**Dynamic crosslinking of polyacrylamide sodium alginate based hydrogel**”
submitted as partial fulfillment of M.Sc. Chemistry has been performed in the
Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the
supervision of **Dr. Arti Srivastava** Assistant Professor, Department of Chemistry,
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

I perform the work presented in this project dissertation in the Department of
Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Amisha Sahu
STUDENT
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ASSISTANT PROFESSOR
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A Project Report

ON

**“Synthesis of Guar Gum and Borax based Self-
Healing Hydrogel and its swelling capacity”**

Submitted for the

Partial Fulfilment of the Requirement for the Award of the Degree of
Master of Science



Supervised By–Submitted By –

Dr. ARTI SRIVASTAVA

(ASSISTANT PROFESSOR)

ANJALI YADAV

Roll Number - 20410006

DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL
UNIVERSITY ACT, 2009)

2021-2022

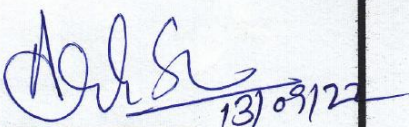


Certificate by the Supervisor

This is to certify that the project entitled "Synthesis of Guar Gum and Borax based self-healing hydrogel and its swelling capacity" submitted by Miss. ANJALI YADAV to Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) for the award of M.Sc. Degree in Chemistry is the research work done under my guidance.

Date: 13/09/2022

Place: Bilaspur
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)



13/09/22
Dr. ARTI SRIVASTAVA
Assistant Professor
Department of Chemistry



DECLARATION



I hereby declare that the report presented in this dissertation entitled
“Synthesis of Guar Gum and Borax based self- healing hydrogel and its
swelling capacity” has been done by me.


STUDENT

MISS ANJALI YADAV

M.Sc. CHEMISTRY IVthSEM

ROLL NO. -20410006

ENROLLMENT NO. : GGV/17/7023


SUPERVISOR 13/09/22

Dr. ARTI SRIVASTAVA

ASST. PROFESSOR

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR (C.G.) INDIA



A Project Report

on

***Synthesis and Characterization of Silver and
Iron Coupled Nanoparticle***

Submitted to
Department of Chemistry,
Guru Ghasidas Vishwavidyalaya, Bilaspur
for the degree of Master of Science
in Chemistry

Session-2021-2022

Guided by:

Dr. ARTI SRIVASTAVA
Assistant Professor
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Submitted by:

Ms. Shatabdi Tripathy
M. Sc. Chemistry IVth Sem.
Enroll No.:GGV/20/072
Roll No.-20410044

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



DECLARATION

I hereby declare that the work present in the project entitled “*Synthesis and Characterization of Silver and Iron Coupled Nanoparticles*” submitted as partial fulfillment of M.Sc. Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of **Dr. Arti Srivastava** Assistant Professor, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

I perform the work presented in this project dissertation in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

STUDENT

Ms. Shatabdi Tripathy
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SUPERVISOR

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

CERTIFICATE

This is to certify that Ms. Shatabdi Tripathy (M. Sc 4th semester) has submitted the project report entitled "*Synthesis and Characterization of Silver and Iron Coupled Nanoparticles*" or partial fulfillment of requirement of M.Sc. Chemistry.

I hereby recommend to forward the project report to the University for the Award of M.Sc. Chemistry during the academic 2021-2022.

I wish her every success in her future life.

SUPERVISOR

Dr. ARTI SRIVASTAVA

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

Ms. Shatabdi Tripathy has completed her project entitle "*Synthesis and Characterization of Silver and Iron Coupled Nanoparticles*" under the supervision and guidance of Dr. Arti Srivastava in partial fulfillment for degree of M.Sc. in Chemistry.

I wish her every success in her future life.

Dr. GOUTAM KUMAR PATRA

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



A
PROJECT REPORT
ON
SYNTHESIS AND CHARACTERISATION OF
MALONONITRILE BASED SCHIFF BASE
CHEMOSENSOR & ITS APPLICATION IN METAL ION
DETECTION IN SEMI-AQUEOUS MEDIUM
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF M.Sc. CHEMISTRY



Department of Chemistry
GURU GHASIDAS VISHWAVIDYALAYA
(A Central University)
2020-2022

Supervisor:
Dr. G. K. PATRA
PROFESSOR
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Submitted by:
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M. Sc. Inorganic Chemistry, 4th Semester
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DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR, C.G. (A CENTRAL UNIVERSITY)



DECLARATION

I hereby declare that the project work presented in this dissertation entitled "*SYNTHESIS AND CHARACTERISATION OF MALONONITRILE BASED SCHIFF BASE CHEMOSENSOR & ITS APPLICATION IN METAL ION DETECTION IN SEMI-AQUEOUS MEDIUM*" have been done by me under the guidance of **Dr. GOUTAM KUMAR PATRA** (Professor), Department of Chemistry, GGV, Bilaspur, C.G.

Bharat Kumar

BHARAT KUMAR SAHU

(M.Sc. Inorganic Chemistry, IVth Semester)
GURUGHASIDAS VISHWAVIDYALAYA
(A CENTRAL UNIVERSITY)
BILASPUR, CG



Dr. GOUTAM KUMAR PATRA

PROFESSOR,
DEPARTMENT OF CHEMISTRY
Guru Ghasidas Vishwavidyalaya,
Bilaspur, C.G. (A central University)



CERTIFICATE

This is to certify that *BHARAT KUMAR SAHU* (M.Sc. Inorganic Chemistry, 4th Semester) has been completed a project on "*SYNTHESIS AND CHARACTERISATION OF MANOLONITRILE BASED SCHIFF BASE CHEMOSENSOR & ITS APPLICATION IN METAL ION DETECTION IN SEMI-AQUEOUS MEDIUM*". This project is submitted for the partial fulfillment of required degree in chemistry.

I wish for his every success in the future.

 13/3/22

Signature

DR. GOUTAM KUMAR PATRA

Professor

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central University),
Bilaspur, C.G.

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



DR. GOUTAM KUMAR PATRA (HOD)

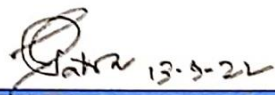
Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur [A Central university]



FORWARDING CERTIFICATE

This is to certify that *BHARAT KUMAR SAHU* (M.Sc. Inorganic Chemistry) has been completed a project on "SYNTHESIS AND CHARACTERISATION OF MANOLONITRILE BASED SCHIFF BASE CHEMOSENSOR & ITS APPLICATION IN METAL ION DETECTION IN SEMI-AQUEOUS MEDIUM" under the supervision of Dr. G. K. PATRA. This project work is submitted for the partial fulfillment of required degree in chemistry and forwarded to Examiner for evaluation.

I wish his every success in the future life.


13-5-22

Signature
DR. GOUTAM KUMAR PATRA
HEAD OF DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
(A CENTRAL UNIVERSITY),
BILASPUR, C.G.



DEPARTMENT OF CHEMISTRY,
GURU GHASIDAS VISHWA VIDYALAYA,
[A CENTRAL UNIVERSITY]
BILASPUR, CG



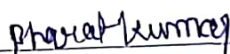
ACKNOWLEDGEMENT

First of all, I would like to declare my feeling in the dignity of almighty that created me with his great immense and patience to achieve this milestone. I own my deep sense of admiration, incredible thanks from the bottom my heart to my guide and my inspiration **DR. G.K. PATRA** (Professor) Department of Chemistry, GURU GHASIDAS VISHWAVIDYALAYA BILASPUR (C.G.) for his keen interest and extraordinary guidance, constructive criticism that contain the capacity of architect this project. I take this opportunity to express my sincere thanks for providing me a golden opportunity to work on this project and for his able guidance, co-operation and inspiration

I express my sincere thanks to respected Meman Sahu sir and Vanshika mam for their special guidance and my friends who encourage and support me every time.

I am also thankful to Mr. Raju Meshram & Mr. D. K. Verma sir (Lab Assistant) Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) for providing chemicals which required in my project.

Finally, I gladly express my thanks to all those loving personalities who have directly or indirectly helped me in some way or other during the course of this project.


BHARAT KUMAR SAHU

(M.Sc. Inorganic Chemistry, IVth Semester)



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A
PROJECT REPORT
ON

REVIEW REPORT ON NANO-GRAPHENE OXIDE
AND ITS POSSIBLE APPLICATION

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF M.SC. CHEMISTRY



SUPERVISOR:

Dr. G.K.PATRA
PROFESSOR
GURU GHASIDASVISHWAVIDYALAYA
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SUBMITTED BY:

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ROLL NO: 20410004

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(Guru Ghasidas Vishwavidyalaya, Bilaspur C.G., india-495009)
(A Central university established under Central University Act 2009)

2020-2022



Dr. Gautam Kumar Patra (HOD)
Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilapur[A Central University]

FORWARDING CERTIFICATE

This is to certify that *AKASH DEWANGAN* (M.Sc. Inorganic Chemistry) has been completed a project on "REVIEW REPORT ON NANO - GRAPHENE OXIDE AND ITS POSSIBLE APPLICATION" under the supervision of Dr. G.K. PATRA. This project work is submitted for the partial fulfilment of required degree in chemistry and forwarded to examiner for evaluation.

I wish him every success in the future life.


Head
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Bilaspur, (C.G.)

Dr. Goutam Kumar Patra (HOD)
HEAD DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA,
(A CENTRAL UNIVERSITY),
BILASPUR, C.G.



DECLARATION

I hereby declare that the literature report presented in this project entitled "REVIEW REPORT ON NANO-GRAPHENE OXIDE AND ITS POSSIBLE APPLICATION" for the degree of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under supervision of Dr. Gautam Kumar Patra (Professor).

The work presented in this project Dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

Date:

Place: Bilaspur

AKASH KUMAR DEWANGAN

(M.SC. INORGANIC CHEMISTRY, IVth SEMESTER)



ACKNOWLEDGEMENT

Completion of the project work which start with initial planning, literature search from various libraries (websites) then reading, understanding and compilation of material into the present project form, followed by experimental work is definitely a herculean task, which doesn't seems to be possible without grace of god. I pray to god to advance me in knowledge and that my endeavors guide me towards the right path.

It is my great pleasure to express my sincere gratitude to my esteem supervisor **Dr GK Patra**, Professor Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under whose guidance the present project work has been brought to completion, my heart leaps up in thankfulness for the benevolent, time, constant help and valuable suggestions throughout the project.

I wish to acknowledge **Prof. Goutam Kumar Patra**, Head of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. who gave me opportunity to undertake project work and his valuable suggestion during my M.Sc. in Chemistry Honors course.

I would also like to thank all teachers who directly or indirectly helped me to pursue my master in Chemistry.

I would also like to thank the laboratory attendants, librarian and office staffs of the Department of Chemistry.

A big thank to all my dear friends who directly and indirectly helped me to complete this project work.

Finally, I would also express my deep sense of gratitude to my parents and family members for their encouragement and support throughout, which always inspires me.

AKASH KUMAR DEWANGAN

(M.SC. INORGANIC CHEMISTRY, IVth SEMESTER)



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A
PROJECT REPORT

ON

*SYNTHESIS AND CHARACTERISATION OF AZINE BASED SCHIFF
BASE CHEMOSENSORS & THEIR APPLICATIONS IN METAL ION
DETECTION IN AQUEOUS MEDIUM*

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



DR. G. K. PATRA
13/04/22

SUPERVISOR-
DR.G.K. PATRA
PROFESSOR
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2021-2022

1



- DECLARATION-

I hereby declare that the project work shown in this presentation entitled as-

“SYNTHESIS AND CHARACTERISATION OF AZINE BASED SCHIFF BASE CHEMOSENSORS & THEIR APPLICATIONS IN METAL ION DETECTION IN AQUEOUS MEDIUM ” have been done by me (soniya masih) in guidance of DR.G.K.PATRA (professor) gg, bilaspur CG....


SONIYA MASIH

(M.SC. Inorganic chemistry 4th sem)
Guru ghasidas vishwavidyalaya
(A CENTRAL UNIVERSITY)
BILASPUR C.G

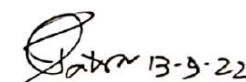


DR. GOUTAM KUMAR PATRA
PROFESSOR,
DEPT. OF CHEMISTRY
Guru ghasidas vishwavidyalaya,
BILASPUR C.G.(A central university)

-CERTIFICATE-

This is to certify that **SONIYA MASHI** (M.sc. Inorganic Chemistry 4th semester) has been completed a project on -
“SYNTHESIS AND CHARACTERISATION OF AZINE BASED SCHIFF BASE CHEMOSENSORS & THEIR APPLICATIONS IN METAL ION DETECTION IN AQUEOUS MEDIUM ”. This project is submitted for partial fulfillment of required degree in chemistry.

I wish her every success in the future.


DR.GOUTAM KUMAR PATRA
PROFESSOR
DEPT. OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
Bilaspur chhattisgarh 495009

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



DR.GOUTAM KUMAR PATRA(HOD)

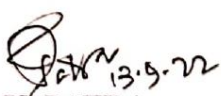
Ass.Professor
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Guru Ghasidas Vishwavidyalaya,
Bilaspur chhattisgarh 495009.



FORWARDING CERTIFICATE

This is to certify that SONIYA MASIH (M.Sc. Inorganic chemistry) has been successfully completed the project on "SYNTHESIS AND CHARACTERISATION OF AZINE SCHIFF BASE CHEMOSENSORS & THEIR APPLICATION IN METAL ION DETECTION IN AQUEOUS MEDIUM" under the supervision of Dr.G.K. PATRA .This project work is submitted for the partial fulfillment of the required degree in chemistry and forwarded to the Examiner for evaluation.

I wish her every success and achievement in future life.


DR.G.K. PATRA
HEAD OF DEPT. OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA ,
BILASPUR (C.G)



DEPARTMENT OF CHEMISTRY,
GURU GHASIDAS VISHWAVIDYALAYA,
BILASPUR CHHATTISGARH.

-ACKNOWLEDGEMENT-

I would like to thank first and foremostly to our almighty God who has made me that able to do such work and achieve such milestone in my life I owe my deep sense of admiration, incredible thanks from bottom of my heart to my guide, mentor and my inspiration DR.G.K.PATRA Sir (Professor) and HOD of dept. of chemistry Guru Ghasidas vishwavidyalaya bilaspur chhattisgarh .for his keen interest and extraordinary guidance .constructive criticism that contain the capacity of architect my this project.

I express my sincere gratitude and thanks to Miss Vanshika Sharma ma'am and Mr. Meman Sahu sir for guiding me and providing me their guidance and help whenever I needed that their behavior towards me was very cheerful.

I would also like to thank Mr.Raju Meshram sir (Lab Assistant) Dept. of chemistry, Guru Ghasidas Vishwavidyalaya Bilaspur Chhattisgarh for providing chemicals and instruments which was required in my project.

Finally, I would like to thank all my family members and friends for helping me and providing me mental support and always keeping me motivated. I would also like to thank all those who helped me directly or indirectly in completing this project .


SONIYA MASIH

(M.Sc. Inorganic chemistry 4th
semester)



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5.2.2 Probe for ligand.	
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5.3.1. Photos-physical measurements	
5.4 STOICHIOMETRY DETERMINATION	
6. RESULTS AND DISCUSSION	:23-27
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A LITERATURE REVIEW BASED PROJECT REPORT ON
**STUDIES ON DIFFERENT ENVIRONMENTAL REMEDIATIONS
BY SYNTHESISED NANOMATERIALS**

FOR THE PARTIAL FULFILMENT OF
MASTER OF SCIENCE DEGREE



DEPARTMENT OF CHEMISTRY, SCHOOL OF PHYSICAL SCIENCE,
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR
(SESSION: 2021 – 2022)

Submitted by

DAMARUDHAR DEHARI

M.Sc. 4th sem. chemistry

Roll No - 20410015

Enrolment No. GGV/17/7161

Under the supervision of

Dr. GOUTAM KUMAR PATRA (PROFESSOR)

Department of Chemistry

GGV, Bilaspur




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. Damarudhar Dehari has carried out review project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "STUDIES ON DIFFERENT ENVIRONMENTAL REMEDIATIONS BY SYNTHESISED NANOMATERIALS". This project is Submitted for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

Date-


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

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



Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

CERTIFICATE

This is to certify that Mr. Damarudhar Dehari has carried out project on the topic "STUDIES ON DIFFERENT ENVIRONMENTAL REMEDIATIONS BY SYNTHESISED NANOMATERIALS" in the Department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under my supervision.

He has worked diligently, meticulously and methodically and collected the literature very sincerely and carefully. During this project work he has learnt about different types of organic and inorganic synthesis.

To the best of my knowledge the work presented in this project is original and not submitted anywhere. I recommend the project report to be forwarded to the respective examiners for Evaluation. I wish him all the success in his carrier and life.

Date-

Supervised By


Dr. Goutam Kumar

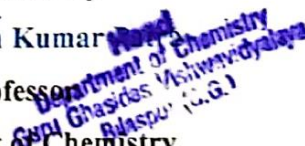
Professor

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.


13-03-22





Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

Declaration

I hereby declare that the literature report presented in this project entitled “**STUDIES ON DIFFERENT ENVIRONMENTAL REMEDIATIONS BY SYNTHESISED NANOMATERIALS**” for the degree of M.Sc. in Chemistry has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under supervision of Professor Dr. G. K. Patra .

The work presented in this project Dissertation is original and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

Date: 13/09/22

Place: Bilaspur

Damarudhar Dehari



ACKNOWLEDGEMENT

Completion of the project work which start with initial planning, literature search from various libraries (websites) then reading, understanding and compilation of material into the present project form, followed by experimental work is definitely a herculean task, which doesn't seem to be possible without grace of god. I pray to god to advance me in knowledge and that my endeavours guide me towards the right path.

It is my great pleasure to express my sincere gratitude to my esteem supervisor Dr. Goutam Kumar Patra Sir Professor Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. under whose guidance the present project work has been brought to completion, my heart leaps up in thankfulness for the benevolent, time, constant help and valuable suggestions throughout the project.

I wish to acknowledge Prof. Goutam Kumar Patra, Head of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. who gave me opportunity to undertake project work and his valuable suggestion during my M.Sc. in Chemistry Honours course.

I would also like to thank all teachers who directly or indirectly helped me to pursue my master in Chemistry.

I would also like to thank the laboratory attendants, librarian and office staffs of the Department of Chemistry.

A big thank to all my dear friends who directly and indirectly helped me to complete this project work.

Finally, I would also express my deep sense of gratitude to my parents and family members for their encouragement and support throughout, which always inspires me.


Damarudhar Dehari
MSC IV SEM. CHEMISTRY



CONTENT

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- 2. Types of pollution
 - 2.1 Air pollution
 - 2.2 Water pollution
 - 2.3 Land or soil pollution
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- 4. Effects of environmental pollution
 - 5.1. Cleaning, sanitizing & Disinfecting
Chemicals and The Cycle of
Environmental Pollution:
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- 10. Conclusion



A
Project Report
On
**ADSORPTIVE REMOVAL OF ORGANIC DYES BY
ZIRCONIUM BASED METAL ORGANIC FRAMEWORK**

In partial fulfillment degree of
M.Sc. Chemistry IV Semester
(Session: 2020-2022)



Department of Chemistry

Guru Ghasidasvishwavidyalaya, Bilaspur (C.G.),INDIA

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

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FORWARDING CERTIFICATE

This is to certify that **SADGI JAISWAL** has carried out post-graduation dissertation project work on “**ADSORPTIVE REMOVAL OF ORGANIC DYES BY ZIRCONIUM BASED METAL ORGANIC FRAMEWORK**” under the supervision of **Dr. Charu Arora**. This project work is submitted for partial fulfillment of the required degree in chemistry and forwarded to the examiner for evaluation.

HEAD OF DEPARTMENT

Professor. Gutam Kumar patra

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CERTIFICATE

This is to certify that **SADGI JAISWAL** has carried out the project in the department of Chemistry, Guru GhasidasVishwavidyalaya, Bilaspur, (C.G.) on the topic “**ADSORPTIVE REMOVAL OF ORGANIC DYES BY ZIRCONIUM BASED METAL ORGANIC FRAMEWORK**” under my supervision.

She has worked diligently, meticulously, and methodically. To the best of our knowledge, the work presented in this project is original and has not been submitted anywhere. I wish her all the success in her carrier and life.

Charu Arora
13.9.22

SUPERVISOR

Dr. CharuArora

(Department of Chemistry)



DECLARATION

I hereby declare that the work presented in the project dissertation entitled “**ADSORPTIVE REMOVAL OF ORGANIC DYES BY ZIRCONIUM BASED METAL ORGANIC FRAMEWORK**” submitted in the partial fulfillment of M.Sc. Chemistry IV semester under PG program was carried out by me at Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

The work presented in the project dissertation is original and will be the intellectual property of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.). The information presented in the dissertation report including data, figure and picture are original or duly credited. If any discrepancy, mistake or plagiarism is found in the report, the responsibility for the same will be solely mine.

Place – Bilaspur


SADGI JAISWAL



ACKNOWLEDGEMENTS

It is matter of great privilege for me to express my deep sense of gratitude towards all those who have directly enlightened me with their knowledge and help me in successful completion of my work

I would like to express my deep sense of gratitude to **Dr. Gutam kumar Patra**, Head of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, for granting permission and providing me with an environment to complete my project successfully.

I take this golden opportunity to express my thanks to my dissertation supervisor **Dr. Charu Arora** Associate Professor, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bliaspur for her constant invaluable guidance, encouragement and support which lead to the successful completion of the project.

I wish to acknowledge **Dr. Charu Arora** (Head, Department of Chemistry, Guru Ghasidas Vishwavidyalaya) who gave me opportunity to work in practical lab with Ph.D. scholar **Ms. Nidhi Rai** for her support in this project.

I would also like to thanks all the faculty members and laboratory staff of this department for support and guidance whenever needed. Also special thanks to all my classmates.

Finally yet importantly, I take this opportunity to express my gratitude and love to my parents and beloved family members, for their understanding, kind support and encouragement to do my work efficiently during the crucial times of the completion of the project.


SADGI JAISWAL



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M.S.C PROJECT

DFT CALCULATION AND IN SILICO STUDY OF ANTI INFLAMMATORY DRUGS



By- **SHRUTI GAVEL**

Roll No: 20410047

Supervisor- Dr. Ashish Kumar Singh

Department of Chemistry
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This is to certify that the Dissertation entitled “**DFT Calculation and In Silico study of Anti Inflammatory Drugs**” is an authenticated record of review work done from April 2022 to September 2022 by **Shruti Gavel**, a student of M.Sc. (Hons.) Chemistry IVth semester, Department of Chemistry, GGV.

The work presented in this dissertation is based on the literature survey and is submitted by her for the award of above-mentioned degree.

Head, Department of Chemistry

GGV, Bilaspur



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This is to certify that **Shruti Gavel** has carried out her dissertation on “**DFT Calculation and In Silico study of Anti Inflammatory Drugs**” The work presented in this dissertation is based on the literature survey (review work) and is submitted by her for the award of M.Sc. in Chemistry Honours.


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DECLARATION

I hereby declare that the work presented in the dissertation entitled-“ **DFT Calculation and In Silico study of Anti Inflammatory Drugs**” is submitted in partial fulfillment of M.Sc. (Hon's.) Chemistry was carried out by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

The work presented in this project dissertation is a review work based on the literature survey. The information presented in the dissertation report including data, figures and pictures is representative of the available literature collected by me.

A handwritten signature in blue ink, appearing to read 'Anil Kumar', is written over a horizontal line.

DATE -:13/09/2022

Place -: Bilaspur



ACKNOWLEDGEMENT

I express my gratitude and sincere thanks to my parents and family, for their understanding, constant support, and encouragement which helped me a lot to work more efficiently during crucial times of the completion of the project.

I express sincere thanks to the Head of the Department, for providing facilities that enable me to complete my work successfully and most importantly for always being a source of inspiration throughout my work.

I take this golden opportunity to express my gratitude and sincere thanks to my respected guide **Dr. Ashish Kumar Singh** Department of Chemistry, GGU, Bilaspur for his guidance, constant encouragement, and support which boosted me with confidence and I am proud to say that it has been a most fruitful and enjoyable experience to work under his guidance.

I am also thankful to all the professors including Ph.D. scholars for their help in making this project a successful one. Also special thanks to my friends and classmates for sharing their valuable assistance.



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Reference



M.Sc. Project Dissertation Report

Synthesis and application of Graphene oxide and reduced graphene oxide



By

Subhashree Sahu

Roll No.: 20410050

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Department of Chemistry

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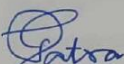


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The work presented in this dissertation is based on the literature survey and is submitted by her for the award of the above-mentioned degree.


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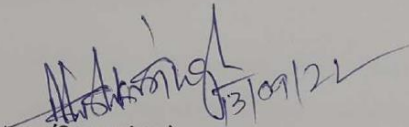


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The work presented in this dissertation is based on the literature survey (review work) and is submitted by her for the award of M.Sc. in Chemistry Honours.


(Supervisor)



DECLARATION

I hereby declare that the work presented in the dissertation entitled- “Synthesis and application of Graphene oxide and reduced graphene oxide” is submitted in partial fulfillment of M.Sc. (Hon’s.) Chemistry was carried out by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

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ACKNOWLEDGEMENT

I express my gratitude and sincere thanks to my parents and family, for their understanding, constant support, and encouragement which helped me a lot to work more efficiently during crucial times of the completion of the project.

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I am also thankful to all the professors including Ph.D. scholars for their help in making this project a successful one. Also special thanks to my friends and classmates for sharing their valuable assistance.

Subhashree Sahu



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**M.Sc. Project
dissertation**

on

**Metal chalcogenide synthesis from single source
precursor: Application in photoelectrolysis of water.**



By

Sejal sen

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This is to certify that the Dissertation entitled “**metal chalcogenide synthesis from single source precursor their application in photoelectrolysis of water**” is an authenticated record of review work done from April 2021 to August 2021 by **sejal sen**, a student of M.Sc. (Hons.) Chemistry IVth semester, Department of Chemistry, GGV.

The work presented in this dissertation is based on the literature survey and is submitted by her for the award of above-mentioned degree.

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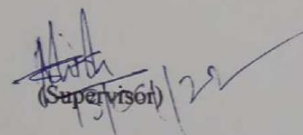


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DECLARATION

I hereby declare that the work presented in the dissertation entitled- “metal chalcogenide synthesis from single source precursor their application in photoelectrolysis of water”

is submitted in partial fulfillment of M.Sc. (Hon’s.) Chemistry was carried out by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

The work presented in this project dissertation is a review work based on the literature survey. The information presented in the dissertation report including data, figures and pictures is representative of the available literature collected by me.

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Place -: Bilaspur

Signature of student



ACKNOWLEDGEMENT

I express my gratitude and sincere thanks to my parents and family, for their understanding, constant support, and encouragement which helped me a lot to work more efficiently during crucial times of the completion of the project.

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I am also thankful to all the professors including Ph.D. scholars for their help in making this project a successful one. Also special thanks to my friends and classmates for sharing their valuable assistance.

Sejal sen



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M.Sc. Project Dissertation Report

Carbon Quantum Dots: Synthesis and Application
in Chemical Sensing



By

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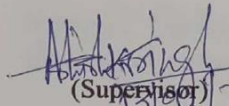


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This is to certify that **Monali Sahu** has carried out her dissertation on “**Carbon Quantum Dots: Synthesis and Application in Chemical Sensing**”.

The work presented in this dissertation is based on the literature survey (review work) and is submitted by her for the award of M.Sc. in Chemistry Honours.


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This is to certify that the Dissertation entitled “**Carbon Quantum Dots: Synthesis and Application in Chemical sensing**” is an authenticated record of review work done from April 2022 to August 2022 by **Monali Sahu**, a student of M.Sc. (Hons.) Chemistry IVth semester, Department of Chemistry, GGV.

The work presented in this Dissertation is based on the literature survey and is submitted by her for the award of above- mentioned degree.


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



DECLARATION

I hereby declare that the work presented in the dissertation entitled- "Carbon Quantum Dots: Synthesis and Application in Chemical Sensing" is submitted in partial fulfillment of M.Sc. (Hon's) Chemistry was carried out by me in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

The work presented in the project dissertation is a review work based on the literature survey. The information presented in the dissertation report including data, figures, and pictures is representative of the available literature collected by me.

DATE -: 13/09/22

Place -: Bilaspur

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Signature of student



ACKNOWLEDGEMENT

I express my gratitude and sincere thanks to my parents and family, for their understanding, constant support, and encouragement which helped me a lot to work more efficiently during crucial times of the completion of the project.

I express sincere thanks to the Head of the Department, for providing facilities that enable me to complete my work successfully and most importantly for always being a source of inspiration throughout my work.

I take this golden opportunity to express my gratitude and sincere thanks to my respected guide **Dr. Ashish Kumar Singh** Department of Chemistry, GGU, Bilaspur for his guidance, constant encouragement, and support which boosted me with confidence and I am proud to say that it has been a most fruitful and enjoyable experience to work under his guidance.

I am also thankful to all the professors including Ph.D. scholars for their help in making this project a successful one. Also special thanks to my friends and classmates for sharing their valuable assistance.

Monali Sahu.



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PROJECT REPORT ON

**Colorimetric and Fluorometric
Sensor For Fluoride Based On Reduced
Schiff Base**



DEPARTMENT OF CHEMISTRY
SCHOOL OF PHYSICAL SCIENCE
GURU GHASIDAS VISHWAVIDHYALAYA, BILASPUR.

MASTER OF SCIENCE IN CHEMISTRY
4th SEMESTER

ACADEMIC YEAR- 2021-2022

UNDER THE GUIDANCE OF

Dr. NIRAJ KUMARI SINGH

Assistant Professor

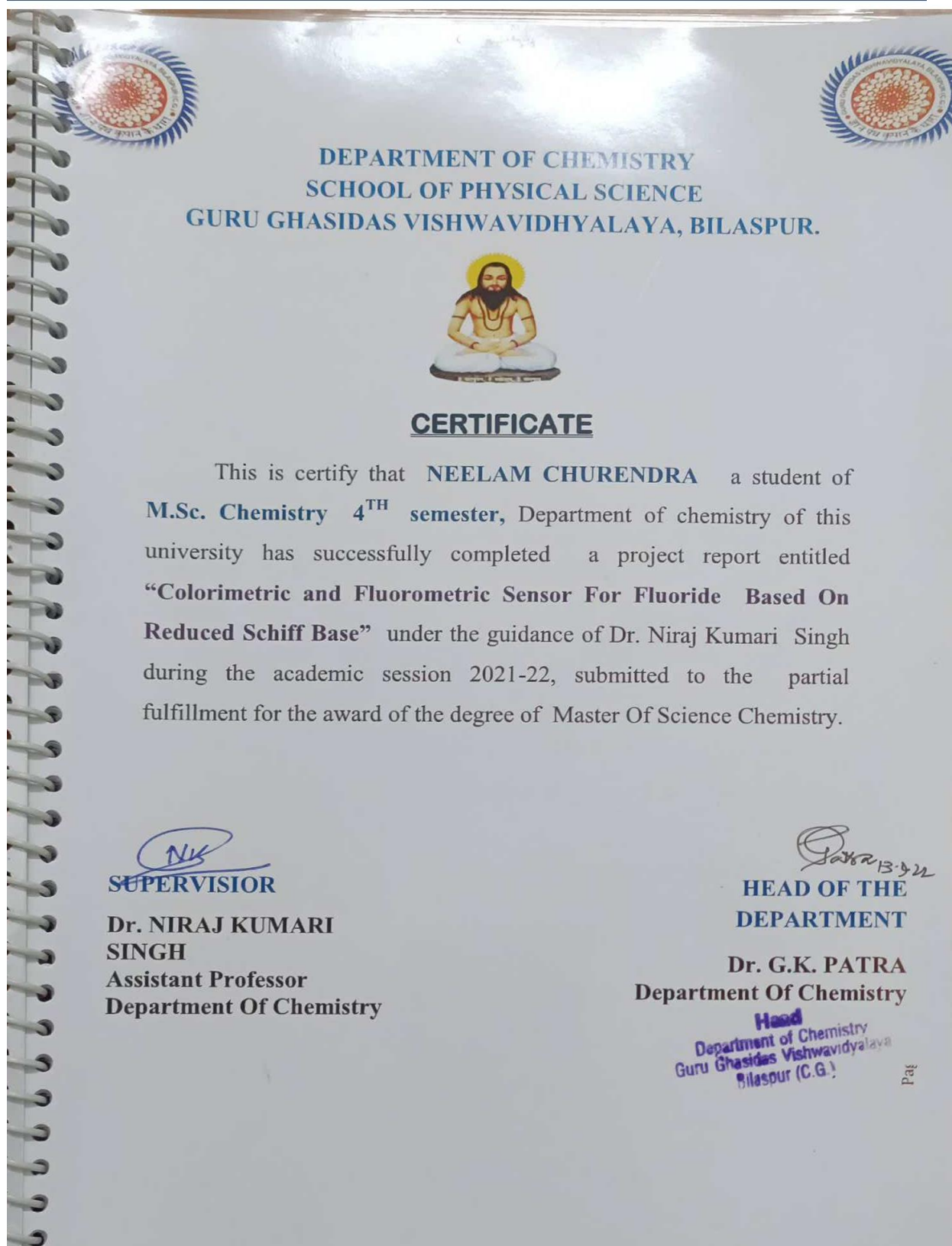
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SUBMITTED BY,

NEELAM CHURENDRA

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CERTIFICATE

This is certify that **NEELAM CHURENDRA** a student of **M.Sc. Chemistry 4TH semester**, Department of chemistry of this university has successfully completed a project report entitled **“Colorimetric and Fluorometric Sensor For Fluoride Based On Reduced Schiff Base”** under the guidance of Dr. Niraj Kumari Singh during the academic session 2021-22, submitted to the partial fulfillment for the award of the degree of Master Of Science Chemistry.


SUPERVISOR

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SINGH**
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**HEAD OF THE
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Head
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Paç



ACKNOWLEDGEMENT

I take this opportunity to express my sincere gratitude to the people who have been instrumental in the successful completion of my work. First of all I thank GOD Almighty for giving me all the blessings in this venture.

I feel immense pleasure to **Dr. Niraj Kumari Singh**, (Assistant Professor, Department of Chemistry, Guru Ghasidas Vishwavidhyalya) who has continually and convincingly conveyed a positive and methodological approach and for her timely criticisms. I shall be obliging to her for my scientific knowledge improvement. Her valuable guidance and constant encouragement inspired me to complete my work successfully.

I take this opportunity to express my gratitude to **Dr. G.K.Patra** (Head of the Department of Chemistry, Guru Ghasidas Vishwavidhyalya) and all other respected faculty members for their advice and encouragement that they have been giving during my course of post-graduation.

I would also thanks to Ph.D. scholars and lab assistant of the Department of chemistry, Guru Ghasidas Vishwavidhyalaya, Bilaspur for their guidelines during my project work.

I cheerfully express my profound thanks to all my classmate for their support and co-operation.

Finally I wish to thanks my family especially my parents for their love, support and motivation.



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GURU GHASIDAS VISHWAVIDYALAYA BILASPUR (C.G.)

Department of Chemistry



MASTERS

IN

Chemistry

Session – 2021-22

PROJECT REPORT

ON

****A Novel Benzimidazolyl Schiff Base ****

GUIDED BY

Dr.Niraj Singh

SUBMITTED BY

Varsha Mahilane

M.sc.IV semester

Roll no. 20410054



GURU GHASIDAS VISHWAVIDYALAYA BILASPUR

Department of Chemistry



ACKNOWLEDGEMENT

My Sincere efforts have made me to accomplish the task of completing this project . I have taken effort in this project. However, it would not have been possible without the kind support and help of many individuals.

I would like to express my sincere gratitude to my Professors, Department and the school for providing me with facilities required to do my project.

I am highly indebted to my Chemistry professor Dr. NIRAJ SINGH mam for her valuable guidance which has promoted my efforts in all the stages of this project work. My thanks and appreciation go to my classmates and laboratory. Assistant in developing my project and to the people who have willingly helped me out with their abilities.

Finally, words are not sufficient to express gratitude my cherished family members for supporting me without their encouragement and support I would not reached this stage.

Signature

Date: 13-09-2022



FORWARDING CERTIFICATE



This is to certify that Miss.VARSHA MAHILANE has carried out the project in the DEPARTMENT OF CHEMISTRY ,GURU GHASIDAS VISHWAVIDYALAYA (A central University Bilaspur (C.G.)) on the “**A Novel Benzimidazolyl Schiff base**” of requirement for the Degree of **M.Sc. in Chemistry** and forwarded to examiner for evolution.


13/09/22
PROF.G.K.PATRA

HEAD

DEPARTMENT OF CHEMISTRY
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Bilaspur 495009 (C.G.)



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	(b) Synthesis and characterization of benzimidazole derivative(L ₁) and its schiff base (L ₂)
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4.	Result and discussion
5.	Conclusion