Department : Chemistry		
Academic Year : 2022-23		
Sr. No.	**Programme Code**	**Name of the Programme**
01.	1764	M. Sc. Chemistry

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

Signature and Seal of the Head

Fabrication of $Ag_{0.1}Cu_{0.5}Co_2O_4$ Hybrid Material for Photocatalytic Degradation of Methylene Blue

A Project submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In partial fulfillment

For the award of the degree

Of

Master of Science

in

Chemistry

by

Abha Sahu

Under the Guidance of

Dr. Subhash Banerjee

Research center

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

August 2023

FORWARDING CERTIFICATE

This is to certify that *Miss. Abha Sahu* has carried out the project in the Department of Certificate Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic **"Fabrication of $Ag_{0.1}Cu_{0.9}Co_2O_4$ Hybrid Material for Photocatalytic Degradation of Methylene Blue".**

This project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evolution.

I wish her every success in her life.

11/8/23

Signature of the HOD
Dr. Goutam Kumar Patra,
Professor
Department of Chemistry, G.G.V.
Bilaspur (C.G)

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

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A DISSERTATION ON
SYNTHESIS, CHARACTERIZATION AND APPLICATION OF NAPHTHYLAMINE BASED SCHIFF BASE
(A Review Article)

As Partial Fulfilment for the Degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

Abhisek Dash

GGV/21/07203

Roll No.: 21104104

M.Sc. 4th Semester

Under the supervision of

Dr. Sunil Kumar Singh

Associate Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA (A Central University)

Bilaspur, 495009 (C.G.)

2022-23

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. Abhisek Dash has carried out a review project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Synthesis, Characterization and Application of Naphthylamine based Schiff Base (Review Article)". This project is Submitted as a partial fulfillment for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.

12/08/23

Prof. Goutam Kumar Patra

Head of Department,

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

A

Project Report

On

SYNTHESIS OF IRON NANOPARTICLES USING OCIMUM SANCTUM

Submitted for

Partial Fulfilment of the Requirement for the Degree of

Master of Science in Chemistry

Session 2021-2023

GUIDED BY
Dr. Ashish Kumar Singh
Associate Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

SUBMITTED BY
Ms. Akanksha Bhardwaj
M.Sc. IV Semester
Roll No. 21104161
Enroll. No. GGV/21/07248

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 **Ms. Akanksha Bhardwaj** has carried out this literature survey- based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic "SYNTHESIS OF IRON NANOPARTICLES USING OCIMUM SANCTUM". This project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Physical Chemistry and forwarded to examiner for evaluation.

I wish her every success in the future life.

11/02/23

Prof. G. K. Patra

Head, Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G.) 495009, India

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PROJECTREPORT

ON

Topic

Benzil dihydrazone-based novel functionalized bis Schiff base receptor reversible colorimetric detection of Cr^{3+}

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

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA

(A Central University)

2021-2023

Supervisor:

PROF. G. K. PATRA

GURU GHASIDASVISHWAVIDYALAYA
(A CENTRALUNIVERSITY)
BILASPUR, C.G.

Submitted by:

AKASH KUMAR PATEL

M. Sc. Inorganic Chemistry, 4th Semester

Roll No. - 21104108

CERTIFICATE

This is to certify that *AKASH KUMAR PATEL* (M.Sc. Inorganic Chemistry, 4th Semester) has been completed a project on **" Benzil dihydrazone-based novel functionalized bis Schiff base receptor reversible colorimetric detection of Cr^{3+}"**

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

I wish for his every success in the futur

11/02/23

Signature

PROF. GOUTAM KUMAR PATRA

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

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

PROF.- G. K. PATRA(HOD)
Department of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur [A Central university]

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Synthesis and Characterization of biocompatible PVA based nanocomposite films and study of their Optical band gap relatively

A Project Report Submitted to

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfilment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Amiya Ranjan Bagh

M.Sc. 4th Sem

Enrollment No. GGV/21/07207

Roll No. 21104109

Supervisor

Dr. Arti Srivastava

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

2022-2023

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILAPUR (C.G.), INDIA

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

CERTIFICATE

This is to certify that **AMIYA RANAJN BAGH** has carried out the project in the department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) on the topic **"SYNTHESIS AND CHARACTERIZATION OF BIOCOMPATIBLE PVA BASED NANOCOMPOSITE FILMS AND STUDY OF THEIR OPTICAL BAND GAP RELATIVELY"** under my supervision.

He 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 him all the success in his career and life.

12/08/2023

SUPERVISOR

Dr. Arti Srivastava

Associate Professor

(Department of Chemistry)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILAPUR (C.G.), INDIA

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

FORWARDING CERTIFICATE

This is to certify that **AMIYA RANJAN BAGH** has carried out post graduation dissertation project work on **"SYNTHESIS AND CHARACTERIZATION OF BIOCOMPATIBLE PVA BASED NANOCOMPOSITE FILMS AND STUDY OF THEIR OPTICAL BAND GAP RELATIVELY"** under the supervision of **Dr. ARTI SRIVASTAVA**. This project work is submitted for the partial fulfilment of the required degree in chemistry and forward to the examiner for evaluation.

HEAD OF DEPARTMENT

Prof. Gautam Kumar Patra

DEPARTMENT OF CHEMISTRY

GGV BILASPUR (C.G.)

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Literature Based Project Report

On

ARENE RUTHENIUM COMPLEXES AND IT'S BIOLOGICAL ACTIVITY

Submitted for

Partial Fulfilment of the Requirement for the Degree of

Master of Science in Chemistry

Session 2021-2023

GUIDED BY
Dr. Ashish Kumar Singh
Associate Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

SUBMITTED BY
Ms. Amrita Abantika Sahu
M.Sc. IV Semester
Roll No. 21104110
Enroll. No.GGV/21/07208

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)

FORWARDING CERTIFICATE

This is to certify that **Ms. Amrita Abantika Sahu** has carried out this literature survey- based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) on the topic **"ARENE RUTHENIUM COMPLEXES AND IT'S BIOLOGICAL ACTIVITY"**.This project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Physical Chemistry and forwarded to examiner for evaluation.

I wish her every success in future.

11/8/23

Prof. G. K. Patra

Head, Department of Chemistry,
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G.) 495009, India

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Literature Based Project Report

On

"MAGNETIC METAL ORGANIC FRAMEWORK NANOCOMPOSITE"

A Project Thesis Submitted for
Partial Fulfillment of the Requirment for the Degree of
M.Sc. in Chemistry

Session - 2022-2023

UNDER THE GUIDANCE OF

Dr. Suryabhan Singh
Assistant Professor
Department of Chemistry

SUBMITTED BY

Aashutosh Joshi
M.Sc. (Chemistry)
IV Semester
Roll No. 21104101

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

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

FORWORDING CERTIFICATE

This is to certify that Aashutosh Joshi has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central Univercity), Bilaspur (C.G.) on the topic "Magnetic Metal Organic Framework Nanocmosites " This project submitted for the partial fulfillment of required degree of M.Sc. in Chemistry and forwarded to examiner for evalution.

I wish every success in his life.

Patra 14/08/23

Dr.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.)

43

Capping effect on cobalt oxide nanoparticle synthesis and characterization and its band gap energy

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Ms. Bhumika Gupta
M.Sc. 4th Sem (Physical Spl.)
Enroll No.- GGV/18/7036
Roll No.- 21104113

Supervisor

Dr. Arti Srivastava
Associate Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya

2022-2023

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

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

DECLARATION

I, ***Bhumika Gupta*** , hereby declare that the project dissertation entitled as **"Capping effect on cobalt oxide nanoparticle synthesis and characterization and its band gap energy"** is submitted as partial fulfillment of M. Sc. in Chemistry. The project work has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of ***Dr. Arti Srivastava***.

I further declare that, to the best of my knowledge, the project does not contain any part of the work which has been submitted for the award of any degree either in the University or any other educational institutes, without proper citation. Also, the project dissertation is original work and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Date: 12.08.2023

Bhumika
Signature of the Candidate

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

Bhumika Gupta

M.Sc. 4th Sem

Roll No.- 21104113

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

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

CERTIFICATE

This is to certify that ***Ms. Bhumika Gupta*** has completed the project dissertation entitled ***"Capping effect on cobalt oxide nanoparticle synthesis and characterization and its band gap energy"*** under my supervision for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***. She has worked diligently, methodically and also collected the literature very sincerely. During this project work she has learnt about various aspects of chemical science to the entitled topic.

To the best of my knowledge and belief of the project

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

I wish her every success in the future life.

Date: 12.08.2023

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

Signature of the Supervisor

Dr. Arti Srivastava

Associate Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR

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

FORWARDING CERTIFICATE

This is to certify that ***Ms. Bhumika Gupta*** has completed the project work entitled as ***"Capping effect on cobalt oxide nanoparticle synthesis and characterization and its band gap"*** under the supervision of ***Dr. Arti Srivastava*** , for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 12.08.2023

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

Signature of the HoD

Prof. Goutam K. Patra

Head of the Department

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Department of Chemistry

Guru Ghasidas Vishwavidyalaya

(A Central University)

Bilaspur (C.G.) 495009, India

A

Literature Based Project Report

ON

GRAPHITIC CARBON NITRIDE BASED ELECTRODE AND THEIR ELECTROCHEMICAL SENSING APPLICATION

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

SUPERVISED BY

Dr. UDAY PRATAP AZAD
Assistant Professor
Department of Chemistry

SUBMITTED BY

DEVAM SIDAR
Roll no. 21104115
Enroll No. GGV/18/7041

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 DEVAM SIDAR **has carried out this literature survey based project in the Department of Chemistry, Guru Ghasi das Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic entitled** "GRAPHITIC CARBON NITRIDE BASED ELECTRODE AND THEIR ELECTROCHEMICAL SENSING APPLICATION"

This project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

11/08/22

Dr. Goutam Kumar Patra

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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

Contents

Guru Ghasidas Vishwavidylaya (A Central University) Bilaspur (C.G.) 495001

A

Literature Based Project Report

On

"CARBENE BASED PINCER LIGANDS AND THEIR IRIDIUM COMPLEXES"

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

Session - 2022-2023

UNDER THE GUIDANCE OF

Dr. Suryabhan Singh

Assistant Professor
Department of Chemistry

SUBMITTED BY

Devendra Pratap

M.Sc. (Chemistry)
Semester IV
Roll No. 21104116

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

FORWORDING CERTIFICATE

This is to certify that Devendra Pratap has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central Univercity), Bilaspur (C.G.) on the topic **"CARBENE BASED PINCER LIGANDS AND THEIR IRIDIUM COMPLEXES"** This project submitted for the partial fulfillment of required degree of M.Sc. in Chemistry and forwarded to examiner for evalution.

I wish every success in his life.

14/8/23

Dr.Goutam Kumar Patra
Head of Department
Department of Chemistry
GGV, Bilaspur (C. G.)

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

Content

Preparation of Electron-rich and Electron-poor Dihydro-pyrimidinone Derivatives

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by
Devid Sahu
M.Sc. 4th Sem (Organic Spl.)
Enrollment No. GGV/21/07212
Roll No. 21104117

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

August 2023

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Devid Sahu*** has completed the project work entitled as ***"Preparation of Electron-rich and Electron-poor Dihydro-pyrimidinone Derivatives"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 11/08/23

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

Patra

Signature of the HoD

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

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Synthesis of Various Benzothiazole Derivatives using Mixed Metal Catalyst

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Divya Patel

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

Enrollment No. GGV/21/07213

Roll No. 21104118

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya.

August 2023

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Divya Patel*** has completed the project work entitled as ***"Synthesis of Various Benzothiazole Derivatives using Mixed Metal Catalyst"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 11/08/23

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

Signature of the HoD

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

TABLE OF CONTENTS

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR [C.G.]

DEPARTMENT OF CHEMISTRY

A PROJECT ON

"SYNTHESIS AND CHARACTERIZATIONS OF HETEROBIMETALLIC COMPLEXES"

SESSION 2021-2023

Submitted by:-

Divya Shukla

M.Sc chemistry

GGV/21/07214

Roll No. 21104119

Sumitted to:-

Dr. Suryabhan Singh

Assistant Professor

Department of Chemistry

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA (C.G)

FORWARDING CERTIFICATE

This is to certify that Miss **Divya Shukla** has carried out the project under my supervision in the Department of Chemistry; Guru GhasidasVishwavidyalaya, Bilaspur (C.G) on the topic **"Synthesis and characterization of hetrobimetallic complexes"**. During this project work, she has learned a few analytical techniques related to inorganic synthesis.

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

Patra 11/08/23

Professor G.K. Patra

Head of Department

Department of Chemistry

GGV

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

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A

Project Report

On

ADSORPTIVE REMOVAL OF MALACHITE GREEN DYE USING FERROCENE IMPREGNATED Fe-NH_2 BDC METAL ORGANIC FRAMEWORK

In partial fulfilment degree of

M.Sc. Chemistry IV Semester

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILAPUR (C.G.), INDIA

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

SUPERVISED BY:

Dr. CHARU ARORA

Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.), 495009, INDIA

SUBMITTED BY:

HITESHREE SAHU

Roll No. – 21104121

GGV/21/07216

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILAPUR (C.G.), INDIA

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

FORWARDING CERTIFICATE

This is to certify that **HITESHREE SAHU** has carried out post-graduation dissertation project work on **"ADSORPTIVE REMOVAL OF MALACHITE GREEN DYE USING FERROCENE IMPREGNATED Fe-NH_2 BDC METAL ORGANIC FRAMEWORK"** under the supervision of **Dr. CHARU ARORA**. This project work is submitted for the partial fulfilment of the required degree in chemistry and forward to the examiner for evaluation.

Patra 14/8/22

HEAD OF DEPARTMENT

Professor Gautam Kumar Patra

DEPARTMENT OF CHEMISTRY

GGV BILASPUR (C.G.)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILAPUR (C.G.), INDIA

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

CERTIFICATE

This is to certify that **HITESHREE SAHU** has carried out the project in the department of chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) on the topic **"ADSORPTIVE REMOVAL OF MALACHITE GREEN DYE USING FERROCENE IMPREGNATED Fe-NH_2 BDC 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 career and life.

Charu Arora

SUPERVISOR

Dr. CHARU ARORA

(Department of Chemistry)

Fabrication of $Pd_{0.1}Ni_{0.9}Co_2O_4$@C for Reduction of Nitro Aromatic Compounds to Aromatic Amines

A Project submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In partial fulfillment

For the award of the degree

Of

Master of Science
in

Chemistry

by

Ishwar Patel

Under the Guidance of

Dr. Subhash Banerjee

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

August 2023

FORWARDING CERTIFICATE

This is to certify that ***Ishwar patel*** has carried out the project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic **"Fabrication of $Pd_{0.1}Ni_{0.9}Co_2O_4$@Carbon for the Reduction of Nitro Aromatic Compounds to Aromatic Amines"**. This project is submitted forthepartial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evolution.

I wish every success in his life.

Signature of the HOD
Dr. Goutam Kumar Patra,
Professor
DepartmentofChemistry,G.G.V.
Bilaspur(C.G)

Head 12/8/20
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

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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)

A Project Report On

"Synthesis of Copper Nanoparticles and its Applications"

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

For Session 2022-2023

Guided By

Dr. Bhaskar Sharma

Assistant Professor

Submitted By

Janhabi Tandi

M.Sc. 4th Semester

Roll No.: 21104123

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 Miss. Janhabi Tandi has carried out a review project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Synthesis Of Copper Nanoparticles and its applications". This project is Submitted as a partial fulfillment for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.

11/08/23

Prof. Goutam Kumar Patra

Head of Department,

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.

Department of Chemistry

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A

PROJECT REPORT

ON

TRIAZOLE-BASED NOVEL *bis* SCHIFF BASE REVERSIBLE FLUROSCENT-COLORIMETRIC CHEMOSENSOR FOR FAST DETECTION OF Pb^{2+} ION IN AQUEOUS MEDIA

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

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA
(A Central University)

2021-2023

Supervisor:
Prof. G. K. PATRA

GURU GHASIDASVISHWAVIDYALAYA
(A CENTRALUNIVERSITY)
BILASPUR, C.G.

Submitted by:
JOGESWAR SAHU
M. Sc. Inorganic Chemistry,
4th Semester
Roll No. - 21104125

Prof. GOUTAM KUMAR PATRA

PROFESSOR,
DEPARTMENT OF CHEMISTRY

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

CERTIFICATE

This is to certify that ***JOGESWAR SAHU*** (M.Sc. Inorganic Chemistry, 4th Semester) has been completed a project on ***"TRIAZOLE-BASED NOVEL bis SCHIFF BASE REVERSIBLE FLUORESCENT-COLORIMETRIC CHEMOSENSOR FOR FAST DETECTION OF Pb^{2+} ION IN AQUEOUS MEDIA"***. This project is submitted for the partial fulfillment of required degree in chemistry.

I wish for his every success in the future.

Patra 11/08/22

Signature
Prof. GOUTAM KUMAR PATRA
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central University),
Bilaspur, C.G.

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

CONTENTS

Preparation of Electron Rich Benzothiazole Derivatives

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Jyotimanjaree Dehury

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

Enrolment No. GGV/21/07220

Roll No. 21104126

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

August 2023

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Miss Jyotimanjaree Dehury*** has completed the project work entitled as ***"Preparation of Electron Rich Benzothiazole Derivatives"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfilment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 11/08/23

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

Signature of the HoD

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

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Studies on Chemosensors for the Detection of Explosive Molecules

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science

in

Chemistry

Submitted by

D. Khasim Vali

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2023)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

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

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

Ref. No.

Bilaspur, Date: 11/08/2023

FORWARDING CERTIFICATE

This is to certify that ***D. Khasim Vali*** *has completed the project work entitled* ***"Studies on Chemosensors for the Detection of Explosive Molecules"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Master of Science in Chemistry"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 11/08/2023

Place: **Bilaspur**

Signature of the Head

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

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A

PROJECT REPORT

ON

IMINO-QUINOLINE BASED SCHIFF BASE RECEPTOR FOR OPTICAL SENSING OF LEAD ION

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

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA
(A Central University)

2021-2023

Supervisor:
Prof. G. K. PATRA

GURU GHASIDASVISHWAVIDYALAYA

BILASPUR, C.G.

Submitted by:
KOYEL RANA

M. Sc. Inorganic Chemistry
4th Semester
Roll No. - 21104128

Prof. GOUTAM KUMAR PATRA(HOD)
Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya,
Bilaspur |A Central university|

FORWARDING CERTIFICATE

This is to certify that *KOYEL RANA* (M.Sc. Inorganic Chemistry) has been completed a project on "IMINO-QUINOLINE BASED SCHIFF BASE RECEPTOR FOR OPTICAL SENSING OF LEAD ION" under the supervision of Prof. G. K. PATRA. This project work is submitted for the partial full fillment of required degree in chemistry and forwarded to Examiner for evaluation.

Patra 11/02/23

I wish his every success in the future life.

Signature

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

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

CONTENTS

Preparation of Electron Rich and Electron Poor Benzopyran Derivatives

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Kuldeep Verma

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

Enrollment No. GGV/18/7079

Roll No. 21104129

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

August 2023

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Kuldeep Verma*** has completed the project work entitled as **"Preparation of Electron Rich and Electron Poor Benzopyran Derivatives"** under the supervision of ***Dr. Bijnaneswar Mondal,*** for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 12/08/23

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

12/8/23

Signature of the HoD

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

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Photocatalytic Degradation of Organic Dyes Using Rice Husk Derived Chemically Activated Carbon

A Project Submitted To

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In partial fulfillment

For the award of the degree

Of

Master of Science
in

Chemistry

by

Kumkum Priyadarshini Sahu

Under the Guidance of

Dr. Subhash Banerjee

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

August 2023

FORWARDING CERTIFICATE

This is to certify that ***Miss. Kumkum Priyadarshini Sahu*** has carried out the project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic "***Photocatalytic Degradation of Organic Dyes Using Rice Husk Derived Chemically Activated Carbon***". This project is submitted for the partial fulfilment of requirements for the degree of M.Sc. in Chemistry and forwarded to examiner for evolution.

I wish her every success in her life.

Patra 11/04/23.

Signature of the HOD
Dr. Goutam Kumar Patra,
Professor
Department of Chemistry, G.G.V.
Bilaspur (C.G)

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

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Project Report

On

ADSORPTIVE REMOVAL OF CRYSTAL VIOLET DYE BY LOW COST ADSORBENT CURCUMA CAESIA RHIZOMES

IN PARTIAL FULFILMENT DEGREE OF
M. SC. CHEMISTRY IV SEMESTER
(SESSION :- 2021 – 2023)

Department Of Chemistry

Guru Ghasida Vishwavidyalaya, Bilaspur (C.G.) 495009, INDIA

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

SUPERVISED BY :-

Prof. Charu Arora

Department of Chemistry
Guru Ghasida Vishwavidyalaya
Bilaspur (C.G.) 495009, INDIA

SUBMITTED BY :-

Madhuri

Roll No. :- 21104133

Department Of Chemistry
Guru Ghasida Vishwavidyalaya, Bilaspur (C.G.) 495009, INDIA
(A Central University established by the Act of Parliament 2009 No. 25 of (2009)

-: FORWARDING CERTIFICATE :-

This is to certify that **MADHURI** has carried out post graduation dissertation project work on **"ADSORPTIVE REMOVAL OF CRYSTAL VIOLET DYE BY LOW COST ADSORBENT CURCUMA CAESIA RHIZOMES"** under the supervision of **Prof. Charu Arora.** This project work is submitted for the partial fulfilment of the required degree in chemistry and forwarded to the examiner for evaluation.

14/08/23

HEAD OF DEPARTMENT

Prof. Gautam Kumar Patra

Department of the Chemistry GGV Bilaspur (C.G.)

Department Of Chemistry
Guru Ghasida 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 **MADHURI** has carried out the project in the department of Chemistry Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) on the project topic **"ADSORPTIVE REMOVAL OF CRYSTAL VIOLET DYE BY LOW COST ADSORBENT CURCUMA CAESIA RHIZOMES"** 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
14.8.23

SUPERVISOR

Prof. Charu Arora

Department of the Chemistry

A

PROJECT REPORT

ON

SYNTHESIS AND CHARACTERIZATION OF DIACETYL DIHYDRAZONE BASED RECEPTOR FOR COLORIMETRIC DETECTION OF NICKEL (II) ION

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

Department of Chemistry

GURU GHASIDAS VISHWAVIDYALAYA
(A Central University)

2021-2023

Supervisor:
PROF. G. K. PATRA
GURU GHASIDASVISHWAVIDYALAYA
(A CENTRALUNIVERSITY)
BILASPUR, C.G.

Submitted by:
MANORANJAN ROUT
M. Sc. Inorganic Chemistry, 4th Semester
Roll No. - 21104134

PROF. GOUTAM KUMAR PATRA (HOD)

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

FORWARDING CERTIFICATE

This is to certify that *MANORANJAN ROUT* (M.Sc. Inorganic Chemistry) has been completed a project on "SYNTHESIS AND CHARACTERIZATION OF DIACETYL DIHYDRAZONE BASED RECEPTOR FOR COLORIMETRIC DETECTION OF NICKEL(II) ION" under the supervision of PROF. 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.

11/05/23

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

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

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A

Literature Based Project Report

ON

Removal of Heavy Metal Contamination by Fruit Peels

Submitted for

Partial Fulfillment of the Requirement for the Degree of

Master of Science in Chemistry

Session: 2022-2023

SUPERVISED BY
Dr. Bhaskar Sharma
Assistant Professor
Department of Chemistry

SUBMITTED BY
Nikhil Prakash Jagat
Roll no. 21104137
Enroll No. GGV/18/7108

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

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

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

FORWARDING CERTIFICATE

This is to certify that Nikhil Prakash Jagat has carried out this experimental literature survey-based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "REMOVAL OF HEAVY METALS CONTAMINATION BY FRUIT PEELS". 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.

11/8/23

Dr. Goutam Kumar PATRA

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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

K. Sharma
14/08/23

CONTENTS

A

Project Report

On

ADSORPTIVE REMOVAL OF EOSIN BY LOW-COST ADSORBENT CURCUMA CAESIA

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

Department of Chemistry

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

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

SUPERVISED BY-

Dr. Charu Arora
Professor
Department Of chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G), 495009, INDIA

SUBMITED BY-

NIRANJAN MEHER
Roll No. 21104138

GGV/21/07230

Department of Chemistry
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) 495009 [INDIA]
(A Central University established by the Act of Parliament 2009 No. 25 of (2009)

FORWARDING CERTIFICATE

This is to certify that **NIRANJAN MEHER** has carried out post graduation dissertation project work on **"ADSORPTIVE REMOVAL OF EOSIN BY LOW-COST ADSORBENT CURCUMA CAESIA"** 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 14/8/23

HEAD OF DEPARTMENT

Professor Gautam Kumar Patra
Department of chemistry
GGV BILASPUR (C.G.)

Department of Chemistry
Guru GhashidasVishwavidyalaya, 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 **NIRANJAN MEHER** has carried out the project in the department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, (C.G.) on the topic "**ADSORPTIVE REMOVAL OF EOSIN BY LOW-COST ADSORBENT CURCUMA CAESIA**" 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

SUPERVISOR

Dr. Charu Arora

(Department of Chemistry)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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

A Literature based Project Report

On

Environmental Remediation Using Nanoparticles and Synthesis of Nickel Oxide Nanoparticles

Master of Science IV Semester

Session 2022-23

SUPERVISED BY

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

OMPRAKASH PATEL

M.Sc. 4th Sem

ROLL NO. - 21104139

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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

FORWARDING CERTIFICATE

This is to certify that the project work entitled "Environmental Remediation Using Nanoparticles and Synthesis of Nickel Oxide Nanoparticles" submitted by this project is submitted for the partial fulfillment of requirements for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

12/02/23

(Signature of H.O.D)

Dr. G.K. PATRA

HEAD

DEPARTMENT OF CHEMISTRY

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

(Signature of Student)

OMPRAKASH PATEL

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Guru GhasidasVishwavidylaya
(A Central University) Bilaspur (C.G.) 495001

A

Experiment Based Project Report

On

"SYNTHESIS AND CHARACTERIZATION OF AMINO ACID BASED SCHIFF BASE AND THEIR COMPLEXES"

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

Session: 2022-2023

UNDER THE GUIDANCE OF

Dr. Suryabhan Singh

Assistant Professor
(Department of Chemistry)

SUBMITTED BY

Pooja Devi

M.Sc. (Chemistry)
Semester IV
Roll No. 21104116

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

FORWORDING CERTIFICATE

This is to certify the **POOJA DEVI** has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic **"SYNTHESIS AND CHARACTERIZATION OF AMINO ACID BASED SCHIFF BASE AND THEIR COMPLEXES"** This project submitted for the partial fulfilment of required degree of M.Sc. in Chemistry and forwarded to examiner for evolution. I wish every success in his life.

12/12/23

Prof.Goutam Kumar Patra
(HOD of Department the Chemistry)
GGU, Bilaspur, (C.G.)

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

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A DISSERTATION ON
TOXICITY OF PHOSPHO-INSECTICIDES: UNVEILING THE DANGERS
(A Review Work)

As Partial Fulfilment for the Degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

Praveen Kumar Nayak

GGV/18/7125

Roll No.: 21104142

M.Sc. 4th Semester

Under the supervision of

Dr. Sunil Kumar Singh

Associate Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA (A Central University)

Bilaspur, 495009 (C.G.)

2022-23

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. Praveen Kumar Nayak has carried out a review project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Toxicity of Phospho-Insecticides: Unveiling the Dangers". This project is Submitted as a partial fulfillment for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.

12/08/23

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.)

A DISSERTATION ON
SYNTHESIS, CHARACTERIZATION AND APPLICATION OF DIHYDRAZONE
(A Review Article)

As Partial Fulfilment for the Degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

Prerna Sinha

GGV/18/7128

Roll No.: 21104143

M.Sc. 4th Semester

Under the supervision of

Dr. Sunil Kumar Singh

Associate Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA (A Central University)

Bilaspur, 495009 (C.G.)

2022-23

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 Miss Prerna Sinha **has carried out a review project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic** "Synthesis, Characterization And Application of Dihydrazone"(A Review Article). **This project is Submitted as a partial fulfillment for the degree of M.Sc. in Chemistry and forwarded to the examiner for evaluation.**

Patra 12/8/23

Prof. Goutam Kumar Patra

Head of Department,

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.

Review on Chemosensors for Nerve agents Detection

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Purnachandra Banchhor

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2023)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

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

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

Ref. No.

Bilaspur, Date: 11/08/23

FORWARDING CERTIFICATE

This is to certify that ***Mr. Purnachandra Banchhor*** *has completed the project work entitled* ***"Review on Chemosensors for Nerve agents Detection"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Master of Science in Chemistry"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date:

Place: **Bilaspur**

Signature of the Head

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

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A

Literature Based Project Report

On

"Electrochemical detection of Pyrazinamide"

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

Session - 2022-2023

UNDER THE GUIDANCE OF

Dr. Uday Pratap Azad
Assistant Professor
Department of Chemistry

SUBMITTED BY

Rahul Dev Suryavanshi
M.Sc. (Chemistry)
IV Semester
Roll No. 21104147

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

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

FORWORDING CERTIFICATE

This is to certify that Rahul Dev Suryavanshi has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "Electrochemical Sensor for Detection of Pyrazinamide" This project submitted for the partial fulfilment of required degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in her life.

Patra 11/08/23

Prof. Gautam Kumar Patra

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

अध्यक्ष/Head
रसायन शास्त्र विभाग
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Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

CONTENTS

Review on Chemosensors for Fluoride Detection

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Master of Science

in

Chemistry

Submitted by

Rahul Gupta

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2023)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra
Professor & Head
M.Sc., Ph.D.
Former Dean School of
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+91-9433378801

Ref. No.

Bilaspur, Date: 11/08/23

FORWARDING CERTIFICATE

This is to certify that ***Mr. Rahul Gupta*** *has completed the project work entitled* ***"Review on Chemosensors for Fluoride Detection"*** *under the supervision of* ***Dr. Bharat Lal Sahu,*** *for the partial fulfillment of required degree of* ***"Master of Science in Chemistry"*** *and forwarded to the Examiner for evaluation.*

I wish his every success in the future life.

Date: 11/08/23

Place: **Bilaspur**

Signature of the Head

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

INDEX

Review on the Removal of Toxic Organic Dyes via Physical and Chemical Methods

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Master of Science
in
Chemistry

Submitted by

Rajni

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

Enrollment No. GGV/21/07238

Roll No.21104149

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

August 2023

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Miss. Rajni*** has completed the project work entitled as ***"Review on the removal of toxic organic dyes via physical and chemical methods"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfillment of required degree of ***"Master of Science in Chemistry"***.

To the best of my knowledge and belief of the project

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

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

Date: 11/08/23

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

Signature of the HoD

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

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A Project Report

On

Synthesis and Characterization of Ag/Ag_2O@Xanthan gum Polymeric Nanocomposite used in photodegradation of methylene blue dye

Submitted For

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

Supervised By

Dr. Arti Srivastava

Associate Professor

Department Of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur - 495009 (C.G.)

Submitted By

Ms. Rashmita Bag

M.Sc. IV Semester

Roll No. 21104150

Enroll. No. GGV/21/07239

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

Session 2022--2023

GURU GHASIDAS VISHWAYAVIDYALAYA

A Central University established Under Central Universities Act,2009

DECLARATION

I, **Rashmita Bag**, hereby declare that the project dissertation entitled as "Synthesis and characterisation of Ag/Ag_2O@Xanthan gum polymeric nanocomposite used in photodegradation of methylene blue dye" is submitted as partial fulfilment of M. Sc. in Chemistry. The project work has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur under the supervision of **Dr. Arti Srivastava.**

I further declare that, to the best of my knowledge, the project does not contain any part of the work, which has been submitted for the award of any degree either in the University or any other educational institutes, without proper citation. Also, the project dissertation is original work and will remain intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Rashmita Bag

Signature of the Candidate

Date:

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

GURU GHASIDAS VISHWAYAVIDYALAYA

A Central University established Under Central Universities Act,2009

CERTIFICATE

This is to certify that ***Ms. Rashmita Bag*** *has completed the project* dissertation *entitled as* "Synthesis and characterisation of Ag/Ag_2O@Xanthan gum polymeric nanocomposite used in photodegradation of methylene blue dye" *under my supervision for the partial fulfilment of required degree of* ***"Master of Science in Chemistry".*** *She has worked diligently, methodically and also collected the literature very sincerely. During this project work she has learnt about various aspects of chemical science to the entitled topic.*

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

Date: 12/08/2023

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

Signature of the Supervisor

GURU GHASIDAS VISHWAYAVIDYALAYA

A Central University established Under Central Universities Act,2009

FORWARDING CERTIFICATE

*This is to certify that Ms. Rashmita Bag has completed the project work entitled as "Synthesis and characterisation of Ag/Ag_2O@Xanthan gum polymeric nanocomposite used in photodegradation of methylene blue dye" under the supervision of Dr. Arti Srivastava , for the partial fulfilment of required degree of **"Master of Science in Chemistry"** and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date:

Signature of the HOD

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

INDEX

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)

SUPERVISED BY-

Dr. CharuArora
Associate Professor
Department of Chemistry
Guru ghasidasVishwavidyalaya
Bilaspur (C.G), 495009, INDIA

SUBMITTED BY –

SADGI JAISWAL
Roll No. 20410039
GGV/20/07211

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)

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

Proffesor.GutamKumar patra

DEPARTMENT OF CHEMISTRY

GGV BILASPUR (C.G.)

18.9.22

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

Department of Chemistry

Guru GhashidasVishwavidyalaya, 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 **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)

A

Project Report

On

"Synthesis and characterization of Cu_2O based polymeric nanocomposite and anti-bacterial activity"

Submitted For

Partial Fulfilment of the Requirement for the Degree of Master science in Chemistry

(Session:2021-2023)

Supervised By

Dr. Arti Srivastava

(Associate Professor)

Department Of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur–495009(C.G.)

Submitted By

Sasmita Bhoi

(M.Sc. IV Semester)

RollNo:21104153

Enroll.No: GGV/21/07242

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 characterization of Cu_2O based polymeric nano composite and anti-bacterial activity"* have been done by me under the guidance of Dr. ARTI SRIVASTAVA (Associate Professor), Department of Chemistry, GGV, Bilaspur, C.G.

Sasmita Bhoi

SASMITA BHOI

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

Dr. ARTI SRIVASTAVA

DEPARTMENT OF CHEMISTRY

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

CERTIFICATE

This is to certify that *SASMITA BHOI* (M.Sc. Physical Chemistry, 4th Semester) has been completed a project on *"Synthesis and characterization of Cu_2O based polymeric nano composite and anti-bacterial activity"*. This project is submitted for the partial fulfilment of required degree in chemistry.

I wish for his every success in the future.

12/08/2023

Signature

Dr. ARTI SRIVASTAVA
Associate Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A central University)
Bilaspur, C.G.

CONTENTS

M.Sc. Project

dissertation

on

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

By

Sejal sen

Roll no = 20410043

Supervisor: *Dr. Ashish Kumar Singh Department of Chemistry*

Guru Ghasidas Vishwavidyalaya Bilaspur-495009 (c.g.)

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 the Dissertation entitled "**metal chalogenide 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.) ChemistryIVth 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

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

content

Department of chemistry

Guru Ghasidas Vishwavidyalaya. Bilaspur (C.G) India

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

A

Project Report

On

Adsorptive removal of methylene blue using the low-cost waste of Curcuma caesia

Submitted for

Partial fulfilment of the requirement for the degree of

Master of Science in Chemistry

Supervised by:

Dr. Charu Arora.
Associate Professor. M.Sc IV sem
Department of Chemistry.
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G),495009,INDIA

Submitted by

Suhani Jena

Roll No:: 20410051

Department of chemistry

Guru GhasidasVishwavidyalaya.,Bilaspur (C.G) India

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

CERTIFICATE

This is to certify that the thesis entitled, "Adsorptive removal of methylene blue using the low-cost waste of Curcuma caesia"submitted by SUHANI JENA in the partial fulfilmentof the requirements for the award of Master of Science Degree in Chemistry at the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.), 495009, INDIA is an authentic work carried out by her under my supervision and guidance. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other University/ Institute for the award of Degree.

Date:

Charu Arora 13.9.22

Dr.CHARU ARORA
ASSOCIATE PROFESSOR

13.9.22
अध्यक्ष / Head
रसायन शास्त्र विभाग
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Department of Chemistry

Guru GhasidasVishwavidyalaya.,Bilaspur (C.G) India

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

Approval certificate

This is to certify that the project entitled, "Adsorptive removal of methylene blue using the low-cost waste of Curcuma caesia"submitted by SUHANI JENA is approved for the award of Master of Science in Chemistry.

Date:

Charu Arora 13.9.22

Dr.CHARU ARORA

Associate Professor

13.9.22

अध्यक्ष / Head
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बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

Synthesis of Flower-Like $ZnCo_2O_4$ Material and Study of Photocatalytic Dye Degradation of Methyl Orange

A Project submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In partial fulfillment

For the award of the

degree of

Master of Science

in

Chemistry

by

Susmita Padhan

Under the Guidance of

Dr. Subhash Banerjee

Research center

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

August 2023

FORWARDING CERTIFICATE

This is to certify that *Miss. Susmita Padhan* has carried out this research based project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic *"Synthesis of Flower-Like $ZnCo_2O_4$ Material and Study of Photocatalytic Dye Degradation of Methyl Orange"* 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 the HOD

Dr. Goutam Kumar Patra,

Professor

Department of chemistry
G.G.V. Bilaspur (C.G.)

12/8/23

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

Table of Content

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

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

A Project Report On

"Formation of TiO2 Nanoparticles from Orange Peel and its Applications"

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

For Session 2022-2023

Guided By

Dr. Bhaskar Sharma

Assistant Professor

Guru Ghasidas Vishwavidyalaya

Submitted By

Swetarani Meher

M.Sc. 4th Semester

Roll No.: 21104157

Enrolment No.-GGV/21/07244

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 Miss. Swetarani Meher has carried out a review project work in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Formation of TiO2 Nanoparticles From orange peel and its applications". This project is Submitted as a partial fulfillment for the degree of M.Sc. In Chemistry and forwarded to the examiner for evaluation.

12/05/23

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.)

Examined
12/05/23

TABLES OF CONTENTS

A DISSERTATION ON
MERCURY: AN ENVIROMENTAL CONCERN
(A Review Work)

As Partial Fulfilment for the Degree of

MASTER OF SCIENCE IN CHEMISTRY

Submitted By

Umashankar Madhriya

GGV/21/07247

Roll No.: 21104160

M.Sc. 4th Semester

Under the supervision of

Dr. Sunil Kumar Singh

Associate Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA (A Central University)

Bilaspur, 495009 (C.G.)

2022-23

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. Umashankar madhriya has carried out review project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. on the topic "Mercury: An Environmental Concern" (Review work) This project is Submitted for the degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

Patra 12/8/23

Prof. Goutam Kumar Patra

Head of Department,

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya,

Bilaspur, C.G.

अध्यक्ष/Head
रसायन शास्त्र विभाग
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Guru Ghasidas Vishwavidyalaya
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

A

Liturature Based Project Report

On

"Electrocatalytic Oxidation of Dopamine at Graphene Modified Electrode"

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

Session - 2021-2023

UNDER THE GUIDANCE OF

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

SUBMITTED BY

Ajaya Kumar Behera
M.Sc. (Chemistry)
IV Semester
Roll No. 21104107

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

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

FORWORDING CERTIFICATE

This is to certify that, Ajaya Kumar Behera has carried out this literature survey based on project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "Electrocatalytic Oxidation of Dopamine at Graphene Modified Electrode" This project submitted for the partial fulfilment of required degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

Patra 11/08/23

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

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

Contents

A
Project Report
On

Electrochemical Detection of Nitrite in Water Sample by Using Tris(1,10-phenanthroline)iron(II) Immobilized Bentonite Clay Film

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

Session- 2022-2023

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

UNDER THE GUIDANCE OF

Dr.Uday Pratap Azad
Assistant Professor
Department of Chemistry

SUBMITTED BY

Likan Kampa
M.Sc. 4th semester Chemistry
Roll- 21104131

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

FORWORDING CERTIFICATE

This is to certify that Likan Kampa has carried out this literature survey based on project in the Department of Chemistry, Guru GhasidasVishwavidyalaya (A Central University), Bilaspur (C.G.) on the topic "Electrochemical Detection of Nitrite in Water Sample by Using Tris(1,10-phenanthroline)iron(II) Immobilized Bentonite Clay Film" This project submitted for the partial fulfillment of required degree of M.Sc. in Chemistry and forwarded to examiner for evaluation.

I wish every success in his life.

Patra 11/08/23

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

CONTENTS

A

Project Report

On

"Graphitic carbon nitride and metal nano composite for electrocatalytic oxygen evolution reaction"

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

Session - 2022-2023

UNDER THE GUIDANCE OF

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

SUBMITTED BY

Sameer Ku. Behera
M.Sc. (Chemistry)
IV Semester
Roll No. 21104152

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

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

CERTIFICATE

This is to certify that Sameer Ku. Behera 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 "Graphitic carbon nitride and metal nano composite for electrocatalytic oxygen evolution reaction"

He has worked diligently; methodically and also collected the literature very sincerely and carefully. During this project work she has learnt about various organic synthesis related to entitled topic.

I wish every success in her career and life.

SUBMITTED BY
Sameer Ku. Behera
M.Sc. Chemistry (IV Sem.)
Roll No. 21104152
Erroll No. GGV/21/07241

SUPERVISED BY
Dr. Uday Pratap Azad
(Assistant Professor)
Department of Chemistry
GGV, Bilaspur (C.G.)

CONTENTS

page No.

Sameer Ku. Behera.