Department : Chemistry		
Academic Year : 2023-24		
Sr. No.	**Programme Code**	**Name of the Programme**
01.	2136	B. 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

Carbon Fiber Reinforced Polymers

A Project submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In Partial fulfilment

For the award of the Degree

of

Bachelor of Science

in

Chemistry

By

Aarchi Mishra

Under the Guidance of

Dr. Subhash Banerjee

Research Center

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

MAY 2024

FORWARDING CERTIFICATE

This is to certify that *Aarchi Mishra* has carried out the project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic **"Carbon Fiber Reinforced Polymers"**.

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

I wish her every success in her life.

19/05/24

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

Signature of the HOD

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

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DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISWAVIDYALAYA BILASPUR

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

A Project Report

On

"BIOPLASTICS FROM AGAR-AGAR"

Bachelor of Science VI Semester

Session: 2023-2024

SUBMITTED TO

Dr. BHASKAR SHARMA
(ASSISTANT PROFESSOR)
DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR(C.G.)

SUBMITTED BY

AARTI MAHTO
B.Sc VI SEMESTER
ROLL NO.-21103102

29/05/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISWAVIDYALAYA 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 "BIOPLASTICS FROM AGAR-AGAR" submitted by this project is submitted for the partial fulfillment of requirements for the degree of B.Sc. in chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

19/05/21

(Signature of HOD)
Prof. G. K. PATRA
HEAD
(DEPARTMENT OF CHEMISTRY)

(Signature of Student)
AARTI MAHTO

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Submitted for fulfilment of the degree of

B.sc. Honours

GURU GHASIDAS VISWAVIDYALAYA, BILASPUR (C.G.)

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

BY

AAVIKA SINGH

Roll. No. - 21103103

Enrollment No. - GGV/21/07003

Under the Supervision of

DR. ASHISH KUMAR SINGH

(Associate Professor)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur

(C.G.), 495009, India

Session 2023-2024

DEPARTMENT OF CHEMISTRY

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

CERTIFICATE

This is to certify that dissertation report on "DFT STUDY ON ANTIOXIDANT PROPERTIES OF PHYTOCHEMICALS" is an authentic record of study reviewed by Aavika Singh, a student of B.Sc. VI semester, Department of Chemistry, GGV.

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

DR. GAUTAM KUMAR PATRA
Head of the Department
Department of Chemistry

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

Date: 19/05/24

Sign:

CONTENT

A REVIEW ON GREEN CATALYST & THEIR IMPORTANCE IN ENVIRONMENT

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelors of Science
in
Chemistry

Submitted by

Amit Kumar Naik

B.Sc. 6th Sem

Enrollment No. - GGV/21/07006
Roll No.- 21103106

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

MAY 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Mr. Amit Kumar Naik*** has completed the project work entitled as ***"A Review On Green Catalyst & Their Importance In Environment"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfillment of required degree of ***"Bechalors 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 B.Sc. degree of the university.

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

Date: 19/5/21

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 Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor's of Science
in
Chemistry
Session: 2021-2024

Submitted by

ANJALI SINGH THAKUR

B.Sc. 6th Sem.

Enrollment No.
GGV/21/07007
Roll No.21103107

Supervisor

Dr. Suryabhan Singh

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

MAY 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Mr. Anjali Singh Thakur*** has completed the project work entitled as **"d^{10}-Metal Dithiocarbamate complexes: Preparation, structure & applications"** under the supervision of ***Dr. Suryabhan Singh***, for the partial fulfillment of required degree of ***"Bachelor 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: 19/05/2024

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

19/5/24

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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Department of Chemistry

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

(A central university Established by the central universities act 2009 No. 25 of 2009)

A

PROJECT REPORT

ON

SYNTHESIS AND CHARACTERIZATION ON CELLULOSE BASED AEROGEL

Submitted for

Partial fulfillment of the requirement for the Degree of

Bachelor of Science (Hon's)

In

Chemistry

Under the guidance

Dr. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.), 495009, India

Submitted by

ANU GUPTA

B.Sc. VIth Sem

Roll no – 21103108

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Department of Chemistry

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

(A central university Established by the central universities act 2009 No. 25 of 2009)

DECLARATION

I hereby declare that the work presented in the Project entitled **SYNTHESIS AND CHARACTERIZATION ON CELLULOSE BASED AEROGEL** submitted to partial fulfillment of Bachelor of Science in Chemistry (Hon's) has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.), under the guidance of **Dr. Arti Srivastava** is truly

Anu Gupta

Dr. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

ANU GUPTA

B.Sc. VIth Sem

Roll no – 21103108

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDALAYA, BILASPUR (C.G.) INDIA

(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL UNIVERSITIES ACT. 2009 NO. 25 OF 2009)

APPROVAL CERTIFICATE

This is to certify that the project entitled, **SYNTHESIS AND CHARACTERIZATION ON CELLULOSE BASED AEROGEL** submitted by Miss Anu Gupta is approved for the award of Bachelor of Science (Hon's) in Chemistry.

19/5/19

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

Prof. Goutam Kumar Patra

Head Of Department

Department of Chemistry,

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G)

Department of Chemistry

Guru Ghasidas Vishwavidyalava, Bilaspur (C.G.) India

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

CERTIFICATE

This is to certify that the project entitled, "SYNTHESIS AND CHARACTERIZATION ON CELLULOSE BASED AEROGEL is submitted by Miss Anu Gupta in the partial fulfillment for the requirements for the award of Bachelor of Science Degree in Chemistry at 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 project has not been submitted to any other University for the award of Degree or Diploma.

Dr. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

CONTENTS

A

Project report

"'Recent Trends in Nanomaterial and Nanocomposite for removal of Organic pollutants from waste water - A review'"

In partial fulfillment of degree of
B.Sc. Chemistry
VI Semester (Session:2021-24)

Department of Chemistry

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

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

SUPERVISEDBY

Prof. CharuArora
Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G), 495009, INDIA

SUBMITTEDBY–

Anubha Tiwari
Roll No.- 21103109
Enrollment no.- GGV/21/07009

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 **Anubha Tiwari** 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 **"Recent trends in nanomaterials and nanocomposites for removal of organic pollutants from waste water- A review".**

She has worked diligently, methodically and collected literature sincerely and carefully.

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 every success in her career and life.

SUBMITTED BY
Anubha
Anubha Tiwari

B. Sc. Chemistry

SUPERVISED BY
Charu Arora
Dr.Charu Arora

Professor,

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)

FORWARDING CERTIFICATE

This is to certify that **Anubha Tiwari** has carried out under graduationdissertation project work on **"RECENT TRENDS ON NANOMATERIAL AND NANOCOMPOSITE FOR REMOVAL OF ORGANIC WASTE FROM WASTE WATER"** under the supervision of **Prof. Charu Arora**. This project work is submitted for the partial fulfillment of the required degree in chemistry and forwarded to the examiner forevaluation.

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

HEAD OF DEPARTMENT
Prof. Gautam Kumar patra
DEPARTMENT OF CHEMISTRY
GGV BILASPUR (C.G.)

GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CHEMISTRY

SESSION – 2023 -2024

A REVIEW ON –

"Chemosensor based on Schiff base for selective detection of Cr^{+3} ion"

GUIDED BY –

Dr. Niraj Kumari

SUBMITTED BY –

Vibhuti Sharma
21103165
B.Sc. Chemistry
6th Semester

CERTIFICATE

This is to certify that the project report entitled "Chemosensor based on schiff base for the selective detection of Cr^{+3}" done by VIBHUTI SHARMA Student of B.Sc. CHEMISTRY VI Semester of GURU GHASIDAS VISHWAVIDYALAYA BILASPUR-495009 (C.G.)

DEPARTMENT *Of* CHEMISTRY
GURU GHASIDAS UNIVERSITY, BILASPUR
CHHATTISGARH, INDIA

19/05/21

Signature of Supervisor

Dr. Niraj Kumari

Department of Chemistry

GGV, Bilaspur

19/5/21

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
Guru Ghasidas Vishwavidyalaya.

Signature of HOD

Prof. G.K. Patra

Department of Chemistry

GGV, Bilaspur

Introduction -

Metal ions are important role in the field of environmental , medical , bioinorganic and biochemistry [1,2,3,4]. Some of these metal ions have a critical role in the biological system for humans, animals, and plants; in fact, their absence can lead to serious problems such pernicious anemia, growth retardation, and cardiac disorders [5,6,7,8].

Cr^{+3} ions are essential to metabolism because they produce adipose, protein, and carbohydrate metabolism and can promote some enzymatic activities. It serves as a vital vitamin and an insulin activator [9,10,]. Moreover, a high concentration of Cr(III) ions can harm cellular components and negatively impact cellular structure which can result in mutation and cancer [11 , 12].

There are numerous advanced analytical methods available to measure Cr^{+3} ions at trace levels in a various of environmental samples. These techniques include capillary electrophoresis , high-performance liquid chromatography (HPLC) , atomic absorption and emission spectroscopy , inductively coupled plasma–optical emission spectrometry (ICP-OES), electrothermal atomic absorption spectrometry , anodic stripping voltammetry , and neutron activation analysis[13,14,15,16] . While these techniques offer high sensitivity, selectivity, and speed of assessment, they are costly, difficult to use, and require excessive sample pretreatment. Therefore, it is still necessary to develop sensitive, selective, technically simple, yet effective methods for detecting Cr^{+3} ions and other contaminants at trace levels in a various of samples

Colorimetric and fluorescent chemosensors have gained attention recently as a potentially useful material for sensing metal ions by color change or fluorescence . The use of colorimetric and fluorescent organic chemosensors to identify Cr^{+3} ions has demonstrated significant success.

The World Health Organization (WHO) recommends a value of 0.05 mgL^{-1} for the concentration of chromium in drinking water

Schiff base –

Small organic compounds comprising N, O, and S, particularly Schiff bases that can function as ligands, are thought to be organic chemosensors with improved selectivity, sensitivity, and low production costs. Because of their tiny size and heteroatom content, these ligands dissolve easily in water. Schiff bases readily interact with various metal ions to provide analytical signals that may be measured[17].

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR
(A Central University)
गुरु घासीदास विश्वविद्यालय, बिलासपुर
(केन्द्रीय विश्वविद्यालय)
(A Central University established by the Central Universities Act 2009 No. 25 of 2009)
www.ggu.ac.in

A

PROJECT REPORT

ON

DFT STUDY ON ANTIOXIDANT PROPERTIES OF PHYTOCHEMICALS

A project submitted to GGU Bilaspur for the degree of Bachelor of Science in Chemistry

Submitted to-

Dr. Ashish Kumar Singh

Associate Professor

Department of Chemistry

Bilaspur (C.G.)

Submitted by-

Bidita Panda

B.Sc. Chemistry (VI SEM)

Enrolment No. – GGV/21/07012

Roll No. 21103112

Department Of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) 495009

(A Central University Established by the Central University Act 2009)

CERTIFICATE

This is to certify that the Dissertation entitled "**DFT study on antioxidant properties of Phytochemicals**" is an authenticated record of review work done from March 2024 to May 2024, a student of B.Sc. (Hons.) Chemistry VIth semester, Department of Chemistry, GGV.

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

19/05/24

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

HOD, Department of Chemistry

GGV, Bilaspur

CONTENTS:

A Review on Study of Antioxidant Properties of Phytochemicals

A

Project Report

Submitted for partial fulfilment of the degree of

B.Sc. Honours

Session 2023-2024

GURU GHASIDAS VISWAVIDYALAYA, BILASPUR (C.G.)

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

BY

CHIRANJIVEE

Roll. No. - 21103114

Enrollment No. - GGV/21/07012

Under the Supervision of

Dr. Ashish Kumar Singh

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009

(C.G.), India

19/05/24

Department Of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) 495009

(A Central University Established by the Central University Act 2009)

CERTIFICATE

This is to certify that the project report entitled "A Review on Study of Antioxidant Properties of Phytochemicals" done by CHIRANJIVEE, Student of B.Sc. Chemistry VIth Semester of Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

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

Signature of HOD

Department of Chemistry

Guru Ghasida Vishwavidyalaya

Bilaspur- 495009

Date – 19/05/24

Place – Bilaspur

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Review on Light Pollution

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Bachelor of Science

in

Chemistry

Submitted by

Damini sahu

Supervisor

Dr. Bharat Lal Sahu

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

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

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

Ref. No.

Bilaspur, Date:

FORWARDING CERTIFICATE

This is to certify that ***Damini sahu*** *has completed the project work entitled* ***"Review on Light pollution"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Bachelor of Science"*** *and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date: 19/05/24

Place: **Bilaspur**

Signature of the Head

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

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GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR (C.G.)

(DEPARTMENT OF CHEMISTRY)

DISSERTATION ON

ANTIBACTERIAL NEEM SOAP

(Partial fulfillment of the requirement for the degree)

SUBMITTED BY

DEVRAJ SENDRE
ROLL NO. – 21103117
ENROLL NO. - GGV/21/07017
B.Sc. – VI th semester

GUIDED BY

Dr. S.K. SINGH
Associate Professor

GURU GHASIDAS VISWAVIDYALAYA BILASPUR (C.G.)

(A Central university established by Central University Act 2009

No. 25 of 2009)

CERTIFICATE

This is to certify that dissertation report on **ANTI BACTERIAL NEEM SOAP** an authentic record of study reviewed by Devraj sendre a student of B.Sc. chemistry VI semester, Department of Chemistry of this university.

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

Dr. Gautam Patra
Professor and Head of Department
Department of Chemistry
Guru Ghasidas Vishwavidyalaya

Email: patra29in@yahoo.co.in

Mobile No: 7587312992

Date: 19/05/24 Sign: Patra place : Bilaspur

RU GHASIDAS VISWAVIDYALAYA BILASPUR (C.G.)

(A Central university established by Central University Act 2009

No. 25 of 2009)

CERTIFICATE

This is to certify that dissertation report on **ANTI BACTERIAL NEEM SOAP** an authentic record of study reviewed by Devraj sendre a student of B.Sc. chemistry VI semester, Department of Chemistry of this university. 19.5.24

Dr. SUNIL KUMAR SINGH

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Email: singh.skumar@gmail.com

Mobile No: 7999540279

Date: 19.5.24

Sign: _____

Bilaspur

Review on Soil Quality of Central Chhattisgarh

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Dimple Dewangan

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

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

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

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

FORWARDING CERTIFICATE

This is to certify that ***Dimple Dewangan*** *has completed the project work entitled* ***"Review on Soil Quality of Central Chhattisgarh"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Bachelor of Science"*** *and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date: 19/05/2024

Place: **Bilaspur**

Signature of the Head

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

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Carbene Based Ligand And their complexes with Iridium

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfilment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Dinesh Kumar Rai
B.Sc 6th Sem
Roll No. - 21103119
Enroll No: GGV/21/07019

Supervisor

Dr. Suryabhan Singh
Assistant Professor
Department of Chemistry
Guru GhasidasVishwvidyalaya

May 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. G. K. PATRA
Head of Department

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

FORWARDING CERTIFICATE

This is to certify that ***Mr. Dinesh Kumar Rai*** has completed the project work entitled as arbene Based Ligand And their complex with Iridium under the supervision of **Dr. Suryabhan ingh** for the partial fulfillment of required degree of ***"Bachelor 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: 19/5/24

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

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

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A REVIEW PROJECT ON

Electrochemical sensor for Detection of the Serotonin

In partial fulfillment of the requirement for the degree of BSc Chemistry

Dissertation Report

Submitted by:

Ekta Sahu

Roll NO. 21103120

BSc. Chemistry

Under the supervision of

DR. UDAY P. AZAD

ASSOCIATE PROFESSOR

GURU GHASIDAS VISHWAVIDYALAYA

KONI , BILASPUR- 495009 (C.G.)

CERTIFICATE

This is to certify that the project report entitled **"electrochemical sensor for detecting serotonin"** done by Ekta Sahu of B.Sc. CHEMISTRY VI Semester of Guru Ghasidas Vishwavidyalaya Bilaspur-495009 (C.G.)

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

SIGNATURE OF HOD

DR. G.K. PATRA

PROFESSOR DEPT. OF CHEMISTRY

GGV BILASPUR 495009

SIGNATURE OF GUIDE

DR. UDAY P. AZAD

ASSOCIATE PROFESSOR

GGV BILASPUR- 495009 (C.G.)

DATE - 19-05-2024

19/05/24

CONTENT

A

Project Report

On

Characterization Techniques used for the Analysis of Phytochemical Constituents

In partial fulfillment of degree
of B. Sc. Chemistry
VI Semester (Session: 2021-24)

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

Prof. CharuArora
Professor
Department of Chemistry
Guru GhasidasVishwavidyalaya
Bilaspur (C.G), 495009, INDIA

SUBMITTED BY –

Harsh Ranjan Singh
Roll No.- 21103121
Enrollment no.- GGV/21/07021

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 **Harsh Rajput** 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 **"Characterization Techniques for the analysis of phytochemical constituents"**.

He has worked diligently, methodically and collected literature sincerely and carefully.

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 every success in his career and life.

SUBMITTED BY

Harsh Rajput

B. Sc. Chemistry

SUPERVISED BY

Dr. Charu Arora

Professor,

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)

FORWARDING CERTIFICATE

This is to certify that **Harsh Ranjan Singh** has carried out under-graduation dissertation project work on **"Characterization Techniques used for the analysis of phytochemical constituents"** under the supervision of **Prof. Charu Arora.** This project work is submitted for the partial fulfillment of the required undergraduate degree in chemistry and forwarded to the examiner for evaluation.

19/05/21

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

HEAD OF DEPARTMENT
Prof . Gutam Kumar patra
DEPARTMENT OF CHEMISTRY
GGV, BILASPUR

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

"BIOPLASTICS FROM POTATO STARCH"

Bachelor of Science VI Semester

Session: 2023-2024

SUBMITTED TO :

Dr. BHASKAR SHARMA

(ASSISTANT PROFESSOR)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY
BILASPUR (C.G.)

SUBMITTED BY :

HARSHA SAHU

B.S.c. VI SEMESTER

ROLL NO. 21103122

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 "BIOPLASTICS FROM POTATO STARCH" submitted by HARSHA SAHU. This project is submitted for the partial fulfillment of requirements for the degree of B.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

19/5/24

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

(Signature of H.O.D.)

Prof. G.K. PATRA

TABLE OF CONTENT

A

Project Report

On

A review on removal of nuclear waste using nanocomposites

In partial fulfillment degree of
B.Sc. Chemistry VI Semester
(Session: 2021-2024)

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-

Prof. CHARU ARORA
Professor
Department of Chemistry
Guru ghasidasVishwavidyalaya
Bilaspur (C.G), 495009, INDIA

SUBMITTED BY –

HARSHVARDHAN SAHU
Roll No. 21103123
GGV/21/07023

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 **Harshvardhan Sahu** 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 "**A review on the removal of nuclear waste using nanocomposites**".

He has worked diligently, methodically and collected literature sincerely and carefully.

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 every success in his career and life.

SUBMITTED BY

Harshvardhan Sahu

B. Sc. Chemistry

SUPERVISED BY

Charu Arora

Dr. Charu Arora

Professor,

Department of Chemistry

GGV, Bilaspur (C.G.)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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

A Literature-Based and Project Report

On

"BIOPLASTICS FROM GELATIN POWDER"

Bachelors of Science VI Semester

Session: 2023-2024

SUBMITTED TO

DR. BHASKAR SHARMA

(ASSISTANT PROFESSOR

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS CENTRAL UNIVERSITY

BILASPUR (C.G.)

SUBMITTED BY

HEMANT VAISHNAW

B.Sc. VI SEMESTER

ROLL NO. 21103125

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 "BIOPLASTICS FROM GELATIN POWDER" Submitted by HEMANT VAISHNAW this project is submitted for the partial fulfilment of requirements for the degree of B.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

(Signature of H.O.D.)

Prof. G.K. PATRA

HEAD

(DEPARTMENT OF CHEMISTRY)

(Signature of Student)

HEMANT VAISHNAW

TABLE OF CONTENT

Synthesis and characterization of silver nanoparticle

A Project Report Submitted

To

GURU GHASIDAS VISHWAVIDYALAYA ,BILASPUR

In partial fulfilment of the requirement for the degree of

Bachelor of scince

In

CHEMISTRY

SUBMITTED BY

JAIMINI GUPTA

UNDER THE SUPERVISION

DR. UDAY PRATAP AZAD

Department of chemistry

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

GURU GHASIDAS VISHWAVIDYALAYA

(A Central University established under Central university act 2009, A++)

Dr. Gautam kumar patra

Head of the department

Department of Chemistry

Guru Ghasidas University

Bilaspur (C.G)

FORWARDING CERTIFICATE

This is to certify that miss. Jaimini Gupta has completed the project work entitled " **synthesis and characterization of silver nanoparticle** " under the supervision of **Dr. Uday Pratap Azad** .for the partial fulfillment of required degree of Bachelor of science in chemistry and forwarded to the examiner for evaluation.

I wish her every success in the future life.

Date : 19/05/21

Place : Bilaspur

signature of the Head

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

Contents:

LIST OF FIGURES:

A Review on Study of NHC Carbene Ligand and Their Ru Complex

A

Project Report

Submitted for partial fulfilment of the degree of

B.Sc. Honours

Session 2023-2024

GURU GHASIDAS VISWAVIDYALAYA, BILASPUR (C.G.)

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

BY

KISHAN KUMAR

Roll. No. - 21103127

Enrolment No. - GGV/21/07027

Under the Supervision of

Dr. SURYABHAN SINGH

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya, Bilaspur-495009

(C.G.), India

Department Of Chemistry,

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) 495009

(A Central University Established by the Central University Act 2009)

CERTIFICATE

This is to certify that the project report entitled "A Review on Study of Antioxidant Properties of Phytochemicals" done by KISHAN KUMAR, Student of B.Sc. Chemistry VIth Semester of Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.)

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

Signature of HOD

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur- 495009

Date – 19/05/21

Place – Bilaspur

CONTENT

DFT study on antioxidant properties of Phytochemicals

A Dissertation proposal

For

Partial fulfillment of the requirement for the award of the degree of

Bachelor of Science in Chemistry

Session (2021-2024)

Submitted by

Kumkum Narang

BSc 6th semester

Enrollment no -GGV/21/07028

Roll no -21103128

Under the supervision of

Dr. Ashish Kumar Singh

Professor

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY

BILASPUR (C. G.)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS UNIVERSITY, BILASPUR 495009

(A Central University established by Central University Act 2009 No -25 of 2009)

CERTIFICATE

This is to certify that the Dissertation entitled **"DFT study on antioxidant properties of Phytochemicals"** is an authenticated record of review work from January 2024 to May 2024 by **Kumkum Narang** a student of BSc hons Chemistry 6th 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 .

19/05/24

Head, Department of Chemistry
GGV, Bilaspur

CONTENT

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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

DEPARTMENT OF CHEMISTRY

A LITERATURE BASED PROJECT REPORT

ON

"GREEN ROAD MAP TO GREEN DRY CLEANING"

BACHELOR OF SCIENCE VI SEMESTER

SESSION 2023-24

SUPERVISOR

DR. S.K SINGH

ASSOCIATE PROFESSOR

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

SUBMITTED BY

MANSHI TIWARI

BSC VI SEMSTER

ROLL NO- 21103129

ENROLLEMENT NO.

GGV/21/07029

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

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

DEPARTMENT OF CHEMISTRY

FORWARDING CERTIFICATE

This is to Certify that the project work entitled "GREEN ROAD MAP TO GREEN DRY CLEANING" Submitted by this project is submitted for the partial fulfillment of requirements for the Degree of B.Sc. in Chemistry and forwarded to the examiner for evaluation. I wish her every success in her life.

(Signature of H.O.D.)

Dr. G.K. PATRA

(Signature of Student)

MANSHI TIWARI

A Review on

Diels-Alder Reaction

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Megha Rai

B.sc. 6th Sem

Enrollment No. GGV/21/07030

Roll No. 21103130

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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 Megha Rai*** has completed the project work entitled as ***"A Review On Diels- Alder Reaction"*** under the supervision of ***Dr. Bijnaneswar Mandal***, for the partial fulfillment of required degree of ***"Bachelor 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: 19/05/24

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

Signature of the HoD

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

TABLE OF CONTENTS

Review on Noise Pollution in Bilaspur Region

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Bachelor of Science

in

Chemistry

Submitted by

Neelam Chandravanshi

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

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

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

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

FORWARDING CERTIFICATE

This is to certify that ***Neelam Chandravanshi*** *has completed the project work entitled* ***"Review on Noise Pollution in Bilaspur Region"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Bachelor of Science"*** *and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date: 19/05/24

Place: **Bilaspur**

Signature of the Head

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

INDEX

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDALAYA, BILASPUR (C.G.) INDIA

(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL UNIVERSITIES ACT. 2009 NO. 25 OF 2009)

A PROJECT ON

"SYNTHESIS AND CHARACTERIZATION OF GRAFT CO-POLYMERIC HYDROGEL "

Submitted for

Partial fulfilment of the requirement for the degree of

BACHELOR OF SCIENCE (HON'S) (CHEMISTRY)

UNDER THE GUIDANCE OF -

DR. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidalaya

Bilaspur, (C.G.) 495001, INDIA

SUBMITTED BY -

MS. NEHA PATEL

B.Sc. chemistry VI sem.

Roll no. – 21103134

Enrollment no.- GGV/21/07034

Batch: 2021-24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDALAYA, BILASPUR (C.G.) INDIA

(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL UNIVERSITIES ACT. 2009 NO. 25 OF 2009)

DECLARATION

I Neha Patel, hereby declare that the project titled " Synthesis And Characterization Of Graft Co-polymeric Hydrogel " presented in this dissertation is the result of my own work and has been conducted for the purpose of partial fulfilment of the requirements for the degree of Bachelor of Science Honours in Chemistry.

This research was undertaken in the esteemed laboratories of the Department of Chemistry, Guru Ghasidas Vishwavidalaya, Bilaspur, under the meticulous guidance and supervision of Dr. Arti Srivastava, whose invaluable support and expertise have contributed significantly to the successful execution of this project. I affirm that all experiments, data analyses, and interpretations presented herein are original and have been carried out diligently and ethically in accordance with the highest standards of scientific integrity. Furthermore, I acknowledge that while the primary focus of this project is the synthesis and characterization of hydrogels, the literature review incorporated within this dissertation remains the intellectual property of the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Neha Patel

Neha Patel

B.Sc. VITH semester

(21103134)

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDALAYA, BILASPUR (C.G.) INDIA

(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL UNIVERSITIES ACT. 2009 NO. 25 OF 2009)

CERTIFICATE

This is to certify that the project entitled, "Synthesis And Characterization Of Graft Co-polymeric Hydrogel" submitted by **Miss Neha Patel** in the partial fulfillment for the requirements for the award of Bachelor of Science Degree in Chemistry at Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.), 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 project has not been submitted to any other University/Institute for the award of Degree or Diploma.

DR. ARTI SRIVASTAVA

Associate Professor

Department Of Chemistry

Guru Ghasidas Vishwavidalaya,

Bilaspur (C.G), India

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDALAYA, BILASPUR (C.G.) INDIA

(A CENTRAL UNIVERSITY ESTABLISHED BY THE CENTRAL UNIVERSITIES ACT. 2009 NO. 25 OF 2009)

APPROVAL CERTIFICATE

This is to certify that the project entitled, ***"Synthesis And Characterization Of Graft Co-polymeric Hydrogel"*** submitted by **Miss Neha Patel** is approved for the award of Bachelor of Science (Hon's) in Chemistry.

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

Prof. GAUTAM KUMAR PATRA

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidalaya,

Bilaspur (C.G.)

CONTENTS:-

Synthesis and Characterization of ZnO Nanoparticles for Antimicrobial Profile

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelors of Science
in
Chemistry

Submitted by

Nidhi Soni

B.Sc. 6th Sem

Enrollment No.
GGV/21/07035

Roll No.21103135

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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. Nidhi Soni*** has completed the project work entitled as ***"Synthesis and Characterization of Zno Nanoparticles for Antimicrobial Profile"*** under the supervision of ***Dr. Bijnaneswar Mondal***, for the partial fulfillment of required degree of ***"Bachelors 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: 19/05/24

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

Signature of the HoD

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

TABLE OF CONTENTS

Review on Electrochemical detection of Myoglobin at modified electrode.

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Nikhil Kumar Sahu

BSc 6th Sem

Enrollment No.-
GGV/21/07036
Roll No. 21103136

Supervisor

Dr. Uday Pratap Azad

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

May 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Mr. Nikhil Kumar Sahu*** has completed the project work entitled as ***"Electrochemical Deterction Of Myoglobin At Modified Electrodes "*** under the supervision of ***Dr. Uday Pratap Azad***, for the partial fulfillment of required degree of ***"Bachelor 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 B.Sc. degree of the university.

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

Date: 15/05/24

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

Signature of the HoD

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

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Colourimetric Detection probe for Cu2+ions based on schiffs base.

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Nikita Jageshwarlal Nayak

BSC 6 Sem

Enrollment No.
Ggv/21/07037
Roll No.21103137

Supervisor

Dr. Niraj Kumari

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

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 ***Nikita Jageshwarlal Nayak*** has completed the project work entitled as ***"Colorimetric detection probe for copper 2+ions based on a Schiffs base"*** under the supervision of ***Dr. Niraj Kumari***, for the partial fulfillment of required degree of ***Bachelor 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: 19/05/2024

Place: **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.)

Signature of the HoD

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DEPARTMENT OF CHEMISTRY

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

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

A

PROJECT REPORT

ON

"SYNTHESIS AND SWELLING BEHAVIOUR OF DIFFERENT HYDROGELS BASED ON SUGARCANE BAGGASE"

Submitted for

Partial fulfillment of the requirement for the degree of

BACHELOR OF SCIENCE (HONS'S)

IN

CHEMISTRY

UNDER THE GUIDENCE OF-

DR. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur(C.G.) 495001,INDIA

SUBMITTED BY

MS. NIKITA KURREY

B.Sc. Chemistry VI Sem

Roll No.- 21103138

19/05/20

DEPARTMENT OF CHEMISTRY

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

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

DECLARATION

I hereby declare that the work presented in the project entitled **"Synthesis and Swelling behaviour of different hydrogel based on sugarcane baggase"** submitted to the partial fulfillment of Bachelor of Science in Chemistry(Hon's) has been performed in the Department of Chemistry,Guru Ghasidas Vishwavidyalaya,Bilaspur(C.G.),under the guidance of Dr.Arti Srivastava is trully carried out by me.

The literature review work presented in this project dissertation remains intellectual property of Department of Chemistry,Guru Ghasidas Vishwavidyalaya,Bilaspur(C.G.)

Nikita

Nikita Kurrey

B.Sc. VI Sem

Roll no.- 21103138

DEPARTMENT OF CHEMISTRY

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

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

CERTIFICATE

This is to certify that the project entitled, **"Synthesis and Swelling behaviour of different hydrogel based on sugarcane baggase"** submitted by **Miss Nikita Kurrey** in the partial fulfillment for the requirements for the award of Bachelor of Science Degree in Chemistry at Department of Chemistry,Guru Ghasidas Vishwavidyalaya (A Central University),Bilaspur (C.G.)495009,India.It is an authentic work carried out by her under my supervision and guidance.

To the best of my knowledge, the matter embodied in the project has not been submitted to any other University/Institute for the award of Degree or Diploma.

Dr. Arti Srivastava

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.)

DEPARTMENT OF CHEMISTRY

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

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

APPROVAL CERTIFICATE

This is to certify that the project entitled,**"Synthesis and Swelling behaviour of different hydrogel based on sugarcane baggase"** submitted by **Miss Nikita Kurrey** is approved for the award of Bachelor of Science (Hon's) in Chemistry.

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

Prof.Goutam Kumar Patra

Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.)

CONTENT

Synthesis and study of collidal solution of Ag-Nanoparticle

Dissertation project submitted

To

DEPARTEMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA ,BILASPUR

By

Nilesh Behra

Er. No :GGV/21/07039

Roll No. -21103139

Under the supervision of

Dr.Khemchand Dewangan

Submission Copy

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASHPUR (C.G.)

2024

K. Shuy
19/05/24

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

(A Central university established by central university act 2009 no.25 of 2009)

CERTIFICATE

This is to certify that the dissertation entitled "Synthesis and study of collidal solution of Ag-Nanoparticle" is based on the work done and being submitted by Nilesh Behra bearing Roll no.-21103139 , Enrollment no.-GGV/21/07039 to the Department of Chemistry , Guru Ghasidas Vishwavidyalaya (A Central University)for the award of the degree of Bachelor of Science in Chemistry ,is a record of Bonafede research work carried out by him under mysupervision and Guidance. The matter presented in this dissertation has not been submitted for the award of any other degree of this or any other students and it represents entirely an independent work of the candidate .

The matter presented in this dissertation has not been submitted for the award of any other degree of this or any other students and it represents entirely an independent work of the candidate .

19.05.2024

Signature of Supervisor

Head of the Department

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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Ionic Liquids: A promising Green Solvent in Organic Synthesis

A Project Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

In partial fulfillment

For the award of the degreeof

Bachelor of Science
in

Chemistry

By

Payal Patel

Under the Guidance of

Dr. Subhash Banerjee

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

May 2024

FORWARDING CERTIFICATE

This is to certify that *Miss. Payal Patel* has carried out the project in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central university), Bilaspur (C.G.) on the topic **"Ionic Liquids: A promising Green Solvent in Organic Synthesis"**. This project is submitted for the partial fulfilment of requirements for the degree of B.Sc. in Chemistry and forwarded to examiner for evolution.

I wish her every success in her life.

Payal Patel

Signature of the HOD

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

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Getting flourocence profile result with homemade equipment

B.Sc. Project Report

By

Pooja Patel

(Enrollment No.: GGV/21/07041)

Department of Chemistry

Guru Ghasidas Vishwavidayalaya

Bilaspur, 495001 (C.G.), India

Certificate

It is to certify that the work in the project report titled "**Getting flourocence profile result with homemade equipment**" by Pooja Patel has been approved under my supervision that this work has been submitted elsewhere.

GGU Bilaspur

19/05/2024

19.05.2024

Dr. Khemchand Dewangan

Department of Chemistry

Guru Ghasidas Vishwavidayalaya (C.G.)

Bilaspur,495001 (C.G.)

Prof. G.K. Patra
Head of Department
Department of Chemistry

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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Impact of Organomercury On Human Health

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor of Science
in
Chemistry

Submitted by

Pranjal sharma

B.Sc. 6th Sem

Enrollment No.
GGV/21/07042
Roll No.- 21103142

Supervisor

Dr. Bijnaneswar Mondal

Assistant Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

May 2024

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K. Patra
Head of the Department

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

FORWARDING CERTIFICATE

This is to certify that ***Mr. Pranjal sharma*** has completed the project work entitled as ***"Impact of Organomercury on Human Health"*** under the supervision of ***Dr. Bijnaneswar Mondal*** for the partial fulfillment of required degree of ***"Bachelor 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 B.Sc degree of the university.

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

Date: 19/05/24

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

Signature of the HoD

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

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A

Project Report

On

A REVIEW ON THE REMOVAL OF HEAVY METALS USING NANOCOMPOSITES

In partial fulfillment degree

Of B.Sc. Chemistry

VI Semester (Session: 2021-24)

Department of Chemistry

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

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

SUPERVISEDBY-

19.05.2024

Dr. Charu Arora

Professor

Department of Chemistry

Guru ghasidas Vishwavidyalaya

Bilaspur (C.G), 495009,INDIA

SUBMITTEDBY–

Pratibha....

PRATIBHA YADAV

Roll No.21103144

Enrollment no-GGV/21/07044

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 Pratibha Yadav 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 "A review on the removal of heavy metals using nanocomposites".

She has worked diligently, methodically and collected literature sincerely and carefully.

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 every success in her career and life.

SUBMITTED BY

Pratibha Yadav

B. Sc. Chemistry

SUPERVISED BY

Dr. Charu Arora

Professor,

Department of Chemistry

GGV, Bilaspur (C.G.)

Department of Chemistry

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

(A Central University established by the Act of Parliament2009 No. 25 of (2009)

FORWARDING CERTIFICATE

This is to certify that **PRATIBHA YADAV** has carried out under graduation dissertation project work on **"A REVIEW ON THE REMOVAL OF HEAVY METALS USING NANOCOMPOSITES"** under the supervision of **Prof. Charu Arora**. This project work is submitted for the partial fulfillment of the required degree in chemistry and forwarded to the examiner for evaluation.

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

HEAD OF DEPARTMENT
Prof. Gautam Kumar Patra
DEPARTMENT OF CHEMISTRY
GGV BILASPUR(C.G.)

"SchiffBase As A Sensor Of Mercury "

A Project ReportSubmittedto

Guru GhasidasVishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree of

Bachelor's of Science
in
Chemistry

Submitted by

Your Name : Rahul Kumar Dewangan
B.Sc.6th sem

Enrollment No.
GGV/21/07047
Roll No.21103147

Supervisor

Dr.NirajKumari Singh

Assistant Professor

Department of Chemistry

Guru GhasidasVishwavidyalaya

Guru GhasidasVishwavidyalaya

(A Central University established under Central Universities Act 2009)

Prof. Goutam K.Patra
Head of the Department

Department of Chemistry
Guru GhasidasVishwavidyalaya
Bilaspur-495009, C.G.

FORWARDINGCERTIFICATE

This is to certify that ***Mr. Rahul Kumar Dewagan*** has completed the project work entitled as ***"Schiff Base As a Sensor Of Metal"*** under the supervision of **DrNirajKumari Singh** for the partial fulfillment of required degree of ***"Batchler of Science in Chemistry"***.

To the best of my knowledge and belief of the project

- is original and has not been submitted anywhere for award of any degree.
- Fulfills the requirement of the Ordinance relating to the B sc. degree of the university.

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

Date:
19-05-24
Place: **Bilaspur, C.G.** **Signature of the HoD**

19/5/24

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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DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISWAVIDYALAYA BILASPUR

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

A PROJECT REPORT ON

"DFT STUDY ON ANTIOXIDANT PROPERTIES OF PHYTOCHEMICAL (MYRICETIN)"

Bachelor of Science VI Semester

Session: 2023-2024

SUBMITTED TO

Dr. ASHISH KUMAR SINGH
(ASSISTANT PROFESSOR)
DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR(C.G.)

SUBMITTED BY

RAHUL PATEL
B.Sc. VI SEMESTER
ROLL NO.-21103148

19/07/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISWAVIDYALAYA 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 "DFT STUDY ON ANTIOXIDANT PROPERTIES OF PHYTOCHEMICALS (MYRICETIN)" submitted by this project is submitted for the partial fulfillment of requirements for the degree of B.Sc. in chemistry and forwarded to the examiner for evaluation. I wish him every success in his life.

Patra 19/05/24

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

(Signature of H.O.D.)
Prof. G. K. PATRA
HEAD
(DEPARTMENT OF CHEMISTRY)

Rahul

(Signature of Student)
RAHUL PATEL

CONTENTS

A REVIEW ON UV & VISIBLE ABSORBTION SPECTRA OF NICKEL COMPLEX IONS

A Project Report Submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.

In partial fulfillment of the requirement for the degree

Bachelor of Science

in

Chemistry

Submitted by

~~Your Name~~ Rahul Sahade

B.Sc. 6th Sem

Enrollment No. GGV/21/07049

Roll No. 21103149

Supervisor

Dr. Khemchand Dewangan

Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

MAY 2024

Sahu 1st copy

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 ***Rahul Sahade*** has completed the project work entitled as ***"UV & Visible Absorbtion Spectra Of Nickel Complex Ions"*** under the supervision of ***Dr. Khemchand Dewangan,*** for the partial fulfillment of required degree of ***"Bachelor 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: 19/05/24

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

Signature of the HoD

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

19.05.2024

GURU GHASIDAS VISHWAVIDYALAYA, KONI BILASPUR (C.G.)

A

PROJECT ON

" SYNTHESIS OF PARACETAMOL "

Dissertation Report Submitted for the partial fulfillment

of the degree of

BACHELOR OF SCIENCE IN CHEMISTRY

BY

SAHIL SIDAR

ROLL NO. 21103152

2023-24

Under the supervision of

DR. K.C. DEWANGAN

PROFESSOR DEPT. OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

KONI BILASPUR- 495009 (C.G)

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

CERTIFICATE

This is to certify that the project report entitled "SYNTHESIS OF PARACETAMOL" done by SAHIL SIDAR Student of

B.Sc. CHEMISTRY VI Semester of Guru Ghasidas Vishwavidyalaya

Bilaspur-495009 (C.G.)

19/5/24

SIGNATURE OF HOD

DR. G.K. PATRA

PROFESSOR DEPT. OF CHEMISTRY

GURU GHASIDA VISHWAVIDYALAYA

BILASPUR- 495009

DATE – 19-05-24

PLACE – BILASPUR

19.05.2024

COUNTENTS

A REVIEW PROJECT ON

Electrochemical sensor for detection of the dopamine.

In partial fulfillment of the requirement for the degree of BSC chemistry

Dissertation Report

Submitted by:
Shiwani Rai
ROLL NO.
21103154

Under the supervision of

DR. UDAY P. AZAD

ASSOCIATE PROFESSOR GURU GHASIDAS VISHWAVIDYALAYA KONI BILASPUR- 495009 (C.G.

CERTIFICATE

This is to certify that the project report entitled "electrochemical sensor for detecting dopamine" done by **Shiwani Rai** of B.Sc. CHEMISTRY VI Semester of Guru Ghasidas Vishwavidyalaya Bilaspur-495009 (C.G.)

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

SIGNATURE OF GUIDE

DR. UDAY P. AZAD

ASSOCIATE PROFESSOR

GGV KONI BILASPUR- 495009 (C.G.)

19/5/24

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

SIGNATURE OF HOD

DR. G.K. PATRA

PROFESSOR DEPT. OF CHEMISTRY

GGV BILASPUR 495009

DATE –

19/5/24

Content.

DEPARTMENT OF CHEMISTRY

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

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

A

PROJECT REPORT

ON

"REDOX INITIATED SYNTHESIS AND CHARACTERIZATION OF CARRAGEENAN AND ACRYLIC ACID BASED GRAFT COPOLYMER"

Submitted for

Partial fulfilment of the requirement for the degree of

BACHELOR OF SCIENCE (HON'S)

IN

CHEMISTRY

UNDER THE GUIDANCE OF –

DR. ARTI SRIVASTAVA

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.) 495001, INDIA

SUBMITTED BY-

MS. SRISHTI YADAV

B.Sc. Chemistry VI Sem.

Roll no. - 211103160

K. Shrivastava 19/05/24

DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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

DECLARATION

I hereby declare that the work presented in the project entitled **Redox initiated synthesis and characterization of Carrageenan and Acrylic Acid baased Graft Copolymer** subbmitted to partial fulfillment of Bachelor of Science in Chemistry(Hon's) has been performed in the Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.), under the guidance of **Dr. Arti Srivastava** is truly carried out by me.

The literature review work presented in this project dissertation remains intellectual property of Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.).

Srishti

Srishti Yadav

B.Sc. Chemistry VI Sem.

Roll No. 21103160

DEPARTMENT OF CHEMISTRY

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

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

CERTIFICATE

This is to certify that the project entitled, **" Redox initiated synthesis and characterization of Carrageenan and Acrylic Acid based Graft Copolymer"** submitted by **Miss Srishti Yadav** in the partial fulfilment for the requirements for the award of Bachelor of Science Degree in Chemistry at Department of Chemistry, Guru Ghasidas Vishwavidyalaya (A Central University) , Bilaspur (C.G.) 495001, 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 project has not been submitted to any other University / Institute for the award of Degree or Diploma.

Dr. Arti Srivastava

Associate Professor

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.)

DEPARTMENT OF CHEMISTRY

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

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

APPROVAL CERTIFICATE

This is to certify that the project entitled, **"Redox initiated synthesis and characterization of Carrageenan and Acrylic Acid based Graft Copolymer"** submitted by **Miss Srishti Yadav** is approved for the award of Bachelor of Science (Hon's) in Chemistry.

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

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A REVIEW ON

DETECTION OF ZN^{2+} IONS USING SCHIFF BASE PROBE

DISSERTATION REPORT SUBMITTED FOR THE PARTIAL FULFILMENT OF THE DEGREE OF

BACHELOR OF SCIENCE IN CHEMISTRY

SUPERVISION
DR NIRAJ KUMARI

DEPARTMENT *Of* CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR
CHHATTISGARH, INDIA

BY
SIDDHARTH SIMGH CHOUHAN

Enrollment No.- GGV/21/07056

SESSION 2023-24

CERTIFICATE

This is to certify that the project report entitled "A review on DETECTION OF Zn^{2+} IONS USING SCHIFF BASE PROBE" done by SIDDHARTH SINGH CHOUHAN Student of B.Sc. CHEMISTRY VI Semester of GURU GHASIDAS VISHWAVIDYALAYA BILASPUR-495009 (C.G.)

DEPARTMENT *Of* CHEMISTRY
GURU GHASIDAS UNIVERSITY, BILASPUR
CHHATTISGARH, INDIA

Signature of Supervisor
Dr. Niraj Kumari
Department of Chemistry
GGV, Bilaspur

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
Guru Ghasidas Vishwavidyalaya,

Signature of HoD
Prof. G.K. Patra
Department of Chemistry
GGV, Bilaspur

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A REVIEW ON TRANSITION METAL CARBONYL COMPLEX

dissertation report submitted for the partial

fulfilment of the degree of

BACHELOR OF SCIENCE IN CHEMISTRY

BY

SURAJCHAND SURJEET

ROLL NO – 21103161

2023 – 2024

under the supervision of

DR. SURYABHAN SINGH

ASSISTANT PROFESSOR

GURU GHASIDAS VISHWAVIDYALAYA

KONI BILASPUR – 495009 (CG)

CERTIFICATE

This is to certify that the project report entitled "A review on **TRANSITION METAL CARBONYL COMPLEX** "done by **SURAJCHAND SURJEET** student of **BSC CHEMISTRY VI** Semester of **GURU GHASIDAS VISHWAVIDYALAYA** Bilaspur 495009

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

अध्यक्ष / Head 19/5/24
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

SIGNATURE OF HOD

DR. GK PATRA

PROFESSOR DEPARTMENT OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR (CG) 495009

DATE-

PLACE -

SIGNATURE OF GUIDE

DR SURYABHAN SINGH

ASSISTANT PROFESSOR

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR (CG) 495009

Dr. Suryabhan Singh
Assistant Professor
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
(A Central University)
Bilaspur (C.G.) 495009

CONTENTS

Review on Plastic Waste Management in Centre Zone of Chhattisgarh

A Project Report Submitted

to

Guru Ghasidas Vishwavidyalaya, Bilaspur

In partial fulfillment of the requirement for the degree of

Bachelor of Science

in

Chemistry

Submitted by

Usha Sidar

Supervisor

Dr. Bharat Lal Sahu

Department of Chemistry

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

(2024)

Guru Ghasidas Vishwavidyalaya

(A Central University established under Central Universities Act 2009)

Dr. G. K. Patra

Department of Chemistry

Professor & Head
M.Sc., Ph.D.
Former Dean, School of Physical Sciences

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

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

FORWARDING CERTIFICATE

This is to certify that ***Usha Sidar*** *has completed the project work entitled* ***" Review on Plastic Waste Management in Centre Zone of Chhattisgarh"*** *under the supervision of* ***Dr. Bharat Lal Sahu****, for the partial fulfillment of required degree of* ***"Bachelor of Science"*** *and forwarded to the Examiner for evaluation.*

I wish her every success in the future life.

Date: 13/05/24

Place: Bilaspur

Signature of the Head

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

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GURU GHASIDAS VISHWAVIDYALAYA , BILASPUR (C.G.)

Dissertation Report Submitted for the partial fulfillment

of the degree of

BACHELOR OF SCIENCE IN CHEMISTRY

BY

VATAN KURRE

ROLL NO. 21103164

2023-24

Under the supervision of

DR. S.K. SINGH

ASSOCIATE PROFESSOR

GURU GHASIDAS VISHWAVIDYALAYA

KONI BILASPUR- 495009 (C.G.)

CERTIFICATE

This is to certify that the project report entitled "**A review on POLYMER DEGRADATION**" done by **VATAN KURRE** Student of B.Sc. CHEMISTRY VI Semester of **Guru Ghasidas Vishwavidyalaya**

Bilaspur-495009 (C.G.)

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

19/05/24

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

SIGNATURE OF HOD

DR. G.K. PATRA

PROFESSOR DEPT. OF CHEMISTRY

GURU GHASIDA VISHWAVIDYALAYA

BILASPUR- 495009

DATE - 19/05/24

PLACE - BILASPUR

GURU GHASIDAS VISHWAVIDYALAYA, KONI
BILASPUR (C.G.)

Dissertation Report Submitted for the partial fulfillment

of the degree of

BACHELOR OF SCIENCE IN CHEMISTRY

BY

VIKASH PATEL

ROLL NO. 21103166

2023-24

Under the supervision of

DR. K.C. DEWANGAN

PROFESSOR DEPT. OF CHEMISTRY

GURU GHASIDAS VISHWAVIDYALAYA

KONI BILASPUR- 495009 (C.G

CERTIFICATE

This is to certify that the project report entitled "A review on EXTRACTION OF CAFFEINE FROM TEA LEAF" done by VIKASH PATEL Student of

B.Sc. CHEMISTRY VI Semester of Guru Ghasidas Vishwavidyalaya

Bilaspur-495009 (C.G.)

DEPARTMENT OF CHEMISTRY

(GURU GHASIDAS VISHWAVIDYALAYA)

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

SIGNATURE OF HOD

DR. G.K. PATRA

PROFESSOR DEPT. OF CHEMISTRY

GURU GHASIDA VISHWAVIDYALAYA

BILASPUR- 495009

DATE – 19-05-2024

PLACE – BILASPUR

19.05.2024

CONTENTS

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR (C.G.)

DEPARTMENT OF CHEMISTRY

DISSERTATION ON SOIL POLLUTION

(Partial fulfillment of the requirement for the degree)

SUBMITTED BY

YOGESH BANJARE

ROLL NO. – 21103167

ENROLL. NO. – GGV/21/07067

B.SC. (HONS.) – VI SEMESTER

GUIDED BY

Dr. S. K. SINGH

Associate professor

19/05/24

GURU GHASIDAS VISWAVIDYALAYA, BILASPUR (C.G.)

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

CERTIFICATE

This is to certify that dissertation report on **SOIL POLLUTION** an authentic record of study reviewed by Yogesh Banjare a student of B.Sc. chemistry VI semester, Department of Chemistry of this university.

Dr. Gautam Patra

Professor and Head of Department

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Email: patra29in@yahoo.co.in

Mobile No: 7587312992

Date: 19/5/24

Sign: Patra

Place: Bilaspur