

**GOVERNMENT AUTONOMOUS COLLEGE  
ROURKELA**

**A  
DISSERTATION REPORT  
ON**

**"DEVELOPMENT OF NANOMATERIAL SUPPORTS FOR THE STUDY OF  
AFFINITY-BASED ANALYTES USING ULTRA-THIN LAYER  
CHROMATOGRAPHY"**

SUBMITTED BY: -  
MADHUSMITA PANDA  
ROLL NO: - 19PCHE01  
PG 2<sup>ND</sup> YEAR (4<sup>TH</sup> SEMESTER)



UNDER THE GUIDANCE AND SUPERVISION OF  
**DR. SASMITA SAMAL**  
(H.O.D, DEPARTMENT OF CHEMISTRY)  
**DR. SONIA SHARMA**  
FOR THE DEGREE OF  
MASTER OF SCIENCE IN CHEMISTRY

A PHYTOCHEMICAL STUDIES AND ANTIOXIDANT  
ACTIVITY OF ASHWAGANDHA  
(WITHANIA SOMNIFERA L.)

*A Review work*

*Submitted in Partial fulfillment of the Requirements for the Award of the  
Degree*

Master of Science

*In*

CHEMISTRY

*By*

**BUNTY SENAPATI**

Roll No: 19PCHE03

2019-21

*Under the Supervision*

*of*

**Dr. Sasmita Samal and Dr. Sonia**



Department of Chemistry Govt. Autonomous College, Rourkela- 769004,  
Odisha

# ULTRASONIC ACTIVATION OF TRIACETONE TRIPEROXIDE

A dissertation

Submitted in partial fulfilment of the requirements for award of  
the degree

*Master of science*

In

**CHEMISTRY**

By

**REEMARANI PADHAN**

Roll no. -19PCHE05

2021

UNDER THE GUIDANCE OF

**Dr. SASMITA SAMAL**

(HOD of Chemistry Dept.)

**GOVT. AUTONOMOUS COLLEGE**

**ROURKELA**

# "DECARBOXYLATIVE ELIMINATION FOR THE SYNTHESIS OF OLEFINS VIA PHOTOREDOX COBALT DUAL CATALYSIS"

*A Dissertation*

*Submitted in Partial fulfillment of the Requirements for the Award of the Degree*

*in*

*By*

**SHUBHAM PADHAN**

Roll No: 19PCHE06

2019-2021

*Under the guidance and supervision*

*Of*

**Dr. Sasmita Samal and Dr. Sonia**



Department of Chemistry

Govt. Autonomous College, Rourkela- 769004, Odisha

**Mass Spectrometry and Nuclear Magnetic  
Resonance in the Chemometric Analysis of Cellular  
Metabolism**

*A Dissertation*  
*Submitted in partial fulfillment of the requirement of the above of the degree*  
*Master of science*  
*In*  
**CHEMISTRY**

**BY**  
**RUPALI MISHRA**  
**Roll no:19PCHE08**  
**2021**

**UNDER THE GUIDANCE & SUPERVISION OF**  
**Dr.SASMITA SAMAL**  
**(HOD Of Chemistry Dept.)**  
**GOVT. AUTONOMOUS COLLEGE**  
**ROURKELA**

**“SYNTHESIS AND CHARACTERISATION OF POLYMER  
COMPOSITES CONTAINING ALIGNED CONDUCTING  
POLYMERS AND CARBON NANOTUBES”**

*A Dissertation*

*Submitted in Partial fulfillment of the Requirements for the Award of the Degree*

**Master of Science**

*In*

**CHEMISTRY**

*By*

**ANIL PODH**

Roll No: 19PCHE09

2019-2021

*Under the guidance and supervision*

*Of*

**Dr. Sasmita Samal and Dr. Sonia**



Department of Chemistry

Govt. Autonomous College, Rourkela- 769004, Odisha

A Review work on the removal of heavy metal ions  
from wastewaters

A Review work submitted in partial fulfillment of the  
Requirements for the Award of the degree

Master of Science

in CHEMISTRY

By

LITA GIRI

ROLL NO: 19PCHE10

2021

Under the supervision of

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SYNTHESIS AND APPLICATIONS OF LANTHANIDE

SULFIDES

A Dissertation  
Submitted in Partial fulfillment of the requirement of the above of  
the degree

Master of

Science In

Chemistry

By

SHIBASISH PRADHAN

Roll No: 19PCHE11

2021

UNDER THE GUIDANCE & SUPERVISION OF

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GOVT. AUTONOMOUS COLLEGE , ROURKELA



**QUANTUM CHEMICAL CALCULATION  
APPLIED TO SOMO-HOMO CONVERSION  
AND VIBRATIONALLY AVERAGED NMR  
SHIELDING PARAMETERS**

**A Dissertation submitted in partial fulfillment  
of requirement of the degree**

**Master in science**

**In**

**Chemistry**

**By**

**Nupur kansari**

**Roll no. 19pche12**

**Under the guidance and supervision of**

**Dr. SASMITA SAMAL**

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**GOVT.AUTONOMOUS COLLEGE ROURKELA.**

*Sasmita Samal  
02-08-21*

# **A REVIEW WORK ON THE TREATMENT OF INDUSTRIAL EFFLUENTS IN A BIOREACTOR**

A Review work

Submitted in Partial fulfilment of the Requirements for the Award of the  
Degree

**Master of Science**

In

**CHEMISTRY**

By

**SNEHA GOUD**

RollNo:19PCHE13 (2019-21)

Under the Supervision of

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**Department of Chemistry**

**Govt. Autonomous College, Rourkela-769004, Odisha**

GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA



**PRAGATI PRIYADARSINI BHANJA**  
**PG 2<sup>nd</sup> YEAR**  
**DEPT. OF CHEMISTRY**  
**ROLL NO-19PCHE15**

**"STRUCTURAL CHARACTERIZATION OF WATER SOLUBLE ATMOSPHERIC  
ORGANIC MATTER BY ULTRAHIGH-RESOLUTION MASS SPECTROMETRY"**

A Dissertation

Submitted in partial fulfillment of the requirement of the above of the

Degree

**Master of Science**

**IN**

**Chemistry**

BY

**TRUPTIRANI GHADEI**

**Roll no: 19PCHE17**

**UNDER THE GUIDANCE & SUPERVISION OF**

**Dr. SASMITA SAMAL**

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**GOVT. AUTONOMOUS COLLEGE**

**ROURKELA**

*Sasmita Samal*  
*02.08.21*

# GOVT. AUTONOMOUS COLLEGE ROURKELA



NAME- AKANKSHYA MOHAPATRA

PG 2<sup>nd</sup> YEAR

ROLL NO-19PCHE18

DEPARTMENT OF CHEMISTRY

GOVERNMENT AUTONOMOUS COLLEGE ROURKELA

A DISSERTATION REPORT

ON

“Synthesis and Catalytic Activity  
Of Nanostructured Cerium oxide”

SUBMITTED BY:

DIMPAL MAHANAND

PG 2<sup>ND</sup> YEAR

UNDER THE GUIDANCE AND SUPERVISION OF

DR.SASMITA SAMAL

(HOD Of Chemistry department)

AND

DR. SONIA SHARMA

FOR THE DEGREE OF

MASTER OF SCIENCE IN CHEMISTRY



**2021**

GOVT.AUTONOMOUS COLLEGE,ROURKELA



**GOVT. AUTONOMOUS COLLEGE  
ROURKELA**



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**PG 2<sup>nd</sup> YEAR**

**ROLL NO.-19PCHE20**

**DEPT.OF CHEMISTRY**



GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA

# A DISSERTATION REPORT

ON

## “Chemistry of Carbon Nanostructures: Functionalization of Carbon Nanotube and Synthesis of Organometallic Fullerene Derivatives”

SUBMITTED BY:  
DEEPIKA TIRKEY  
PG 2<sup>ND</sup> YEAR

UNDER THE GUIDANCE AND SUPERVISION OF  
DR. SASMITA SAMAL  
(HOD Chemistry Department)  
AND  
DR. SONIA SHARMA  
FOR THE DEGREE OF  
MASTER OF SCIENCE IN CHEMISTRY



2021

DEPARTMENT OF CHEMISTRY  
GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA

QUANTUM MECHANICAL AND MOLECULAR  
MECHANICAL STUDY OF SOLVENT EFFECTS

*A Review work*

*Submitted in Partial fulfillment of the Requirements for the Award of the  
Degree*

Master of Science

*In*

CHEMISTRY

*By*

**DEBENDRA HARPAL**

Roll No: 19PCHE23

2019-21

*Under the Supervision*

*of*

**Dr. Sasmita Samal and Dr. Sonia**



Department of Chemistry Govt. Autonomous College, Rourkela- 769004,  
Odisha

SYNTHESIS, CHARACTERIZATION AND CATALYTIC  
ACTIVITY OF COPPER PALLADIUM OXIDE SOLID  
SOLUTIONS

*A Review work*

*Submitted in Partial fulfillment of the Requirements for the Award of the  
Degree*

Master of Science

*In*

CHEMISTRY

*By*

**NELSON KUJUR**

Roll No: 19PCHE24

2019-21

*Under the Supervision*

*of*

**Dr. Sasmita Samal and Dr. Sonia**



Department of Chemistry Govt. Autonomous College, Rourkela- 769004,  
Odisha

GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA

**A DISSERTATION REPORT**  
**ON**  
**“EXTRACTION OF ESSENTIAL OIL AND ITS APPLICATIONS”**

SUBMITTED BY:  
ANUPAMA BURH  
PG 2<sup>ND</sup> YEAR

UNDER THE GUIDANCE AND SUPERVISION OF  
DR. SASMITA SAMAL  
(HOD Chemistry Department)  
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DR. SONIA SHARMA  
FOR THE DEGREE OF  
MASTER OF SCIENCE IN CHEMISTRY



**2021**

DEPARTMENT OF CHEMISTRY  
GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA

**A DISSERTATION REPORT**  
**ON**  
**“Preparation of Soap using Different Types of oils**  
**and Exploring its Properties”**

**SUBMITTED BY:**  
**RASHMITA KUJUR**  
**PG 2ND YEAR**

**UNDER THE GUIDANCE AND SUPERVISION OF**  
**DR. SASMITA SAMAL**  
**(HOD Chemistry Department)**  
**AND**  
**DR. SONIA SHARMA**  
**FOR THE DEGREE OF**  
**MASTER OF SCIENCE IN CHEMISTRY**



**2021**

**DEPARTMENT OF CHEMISTRY**  
**GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA**



ormatic and Biophysical  
A Dissertation

submitted in partial fulfillment of the requirement of the  
above of the degree  
master of science

in

chemistry by

SANJAY LUHA

Roll no: 19PCHE27

2021

UNDER THE GUIDANCE & SUPERVISION OF

Dr. SASMITA SAMAL

(HOD chemistry dept.)

GOVT. AUTONOMOUS COLLEGE ROURKELA

# **Bioinformatic and Biophysical Analyses of Proteins**

A Review work submitted in partial fulfillment of the  
Requirements for the Award of the degree

Master of Science

in CHEMISTRY

By

KUMUDINI MINZ

ROLL NO: 19PCHE28

2021

Under the supervision of

Dr. Sasmita Samal



Department of chemistry

Govt. Autonomous college, Rourkela-769004, odisha



# CHEMICAL VAPOUR DEPOSITION OF 2D STRUCTURES AND HETEROSTRUCTURES

A dissertation submitted in partially fulfillment of  
requirement of the degree in master in science

In

By Arpita Sarangi

Roll no. 19PCHE29

Under the guidance and supervision of

Dr. SASMITA SAMAL

(HOD chemistry dept.)

GOVT. AUTONOMOUS COLLEGE ROURKELA.

*Sasmita Samal  
02-08-21*

# Fluoride removal from water various techniques:

## A critical review

A dissertation

Submitted in partial fulfilment of the requirement of above of the degree

**Master of science**

In

**Chemistry**

By

**BINODINI MUNDA**

Roll no:19PCHE30

2021

Under the guidance and supervision

Of

**Dr. SASMITA SAMAL**

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Govt autonomous college ,Rourkela,odisha

*Sasmita Samal*  
*02-08-21*

**Oxygen Binding Thermodynamics of Human Hemoglobin in the  
Red Blood Cell**

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*A Dissertation*  
*Submitted in partial fulfillment of the requirement of the above of the degree*  
*Master of science*  
*In*  
**CHEMISTRY**

**BY**

**DEBASHIS KUMAR SAHU**

**Roll no:19PCHE31**

**2021**

*Sasmita Samal*

**UNDER THE GUIDANCE & SUPERVISION OF**  
**Dr.SASMITA SAMAL**  
**(HOD OF Chemistry Dept.)**  
**GOVT. AUTONOMOUS COLLEGE**  
**ROURKELA**

**The Study Of Green Application of Organic pest control  
Methods Adopted in Chikirsha organic farm Pallahara,  
Angul, Odisha**

**A Dissertation Submitted in partial fulfillment of the requirements  
For the award degree of**

**Master Of Science**

**In**

**CHEMISTRY**

**By**

**Monalisha Sahoo**

**Roll No-19 PCHE32**

**2021**



**Under the Supervision of**

**Dr. SONIA**

**Asst. Professor of CHEMISTRY**

**GOVERNMENT AUTONOMOUS COLLEGE, ROURKELA-769004 ODISHA**

# Synthesis and Applications of Cyclobutenes

*A Dissertation*

*Submitted in partial fulfillment of the requirement of the above of the degree*

*Master of science*

*In*

**CHEMISTRY**

**BY**

**SAMIRSEN NAYAK**

**Roll no:19PCHE33**

**2021**



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**Dr.SASMITA SAMAL**

**(HOD Of Chemistry Dept.)**

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**ROURKELA**