

**IMPACT OF NH-16 VEHICULAR POLLUTION  
ON PLANT MORPHOLOGY, ANATOMY,  
PHYSIOLOGY AND BIOCHEMISTRY IN  
CHATRAPUR AREA**

For Partial Fulfillment of  
the Degree of  
**Master of Science**

Submitted by:  
**Baichandra Bhati**  
Roll no.: 24BOTA0025  
Registration no.:21069/2024

Guided By:  
**Dr. Pranati Nayak,**  
Assistant Professor  
Department of Botany



**Government Science College, Chatrapur,  
Ganjam**  
Academic session: 2024-2026

## DECLARATION

I hereby declare that the project report entitled "IMPACT OF NH-16 VEHICULAR POLLUTION ON PLANT MORPHOLOGY, ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY IN CHATRAPUR AREA" being submitted by me to Government Science College, Chatrapur for the fulfillment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted jointly by myself and Shubhasree Nayak, Itisri Andia under the supervision of Dr. Pranati Nayak, Assistant Professor, Department of Botany, Government Science College, Chatrapur. No part of this work or in full form has been submitted to any other institute for a similar Degree or Diploma. The assistance and help received during the course of this investigation have been duly acknowledged.

*Baichandra Bhati*

Name -Baichandra Bhati  
University roll no:24BOTA0025  
Registration no.21069/2024

*Examined - 2026*  
*BOTA - D - 405*  
*Sem - IV - M.Sc. (Botany)*

*[Signature]*  
*14/05/26*  
*External*

*P. Nayak*  
*14/05/26*  
*(Internal)*

**TOPIC:- GROWTH ANALYSIS OF CORIANDER UNDER ORGANIC AND  
INORGANIC FERTILIZERS TREATMENT**

**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR**

In partial fulfilment for award of the  
Degree of Master of Science in Botany

(2024-26)



**SUBMITTED BY:**

**BIKASH KUMAR SAI**

**EXAM Roll no: 24BOTA0026**

**COLLEGE Roll no: BOTA24-001**

**Under the supervision of**

**MISS IPSITA PALAI**

Department of Botany

**Government Science College, Chatrapur, Odisha**

**P.G. Department of Botany**

**Government Science College, Chatrapur**

**Ganjam, Odisha, 761020.**

## DECLARATION

I do hereby declare that the work presented in this dissertation entitled " **GROWTH ANALYSIS OF CORIANDER UNDER ORGANIC AND INORGANIC FERTILIZERS TREATMENT** " carried out by Roll No. 24BOTA0026 is an original work done and submitted by me in the fulfilment for the degree of Master of Science in Botany, Government Science College, Chatrapur. This is an original work done by me under the guidance and supervision of Miss Ipsita Palai, P.G. department of Botany, Government Science College, Chatrapur, PIN-761020.

Further, I declare that it has not been submitted or published so far, partially, or fully for the degree of master's in science or any other degree of any college or institution

*Bikash Kumar Sai*

BIKASH KUMAR SAI

PG DEPARTMENT OF BOTANY

GOVERNMENT SCIENCE COLLEGE

CHATRAPUR, 761020 (GANJAM) ODISHA

*Examined - 2026*  
*BOTA-D-405-*  
*M.Sc. (Bot) - Sem. IV*

*A. Nayak*  
*14/05/2026*  
*External*

*P. Nayak*  
*14/05/26*  
*(Internal)*

# **GROWTH ANALYSIS OF SPINACH UNDER ORGANIC AND INORGANIC FERTILIZER TREATMENTS**

**A**

**Project submitted to**

**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR**

In partial fulfilment for award of the Degree of

Master of Science in Botany (2024-26)



**Submitted by:**

Name: BISHNU PRIYA SWAIN

Exam Roll no: 24BOTA0027

REGD No. : 21071/2024

**Under the supervision of**

IPSITA PALAI

Department of Botany

Government Science College, Chatrapur, Odisha

P.G. Department of Botany

Government Science College, Chatrapur

Ganjam, Odisha, 761020.

## DECLARATION

I do hereby declare that the work presented in this dissertation entitled "**GROWTH ANALYSIS OF SPINACH UNDER ORGANIC AND INORGANIC FERTILIZER TREATMENTS**" carried out by Roll No. 24BOTA0027 is an original work done and submitted by me in the fulfilment for the degree of Master of Science in Botany, Government Science College, Chatrapur. This is an original work done by me under the guidance and supervision of Miss Ipsita Palai, P.G. department of Botany, Government Science College, Chatrapur, PIN-761020.

Further, I declare that it has not been submitted or published so far, partially, or fully for the degree of master's in science or any other degree of any college or institution.

Bishnu Priya Swain

Bishnu Priya Swain

Exam Roll no. : 24BOTA0027

P.G.Department of Botany

Government Science College, Chatrapur

Examined-2  
BOTA-D-405  
M.Sc. 4th Sem

Abhaya  
14/05/2026  
External

P. Nayak  
14/5/26  
(Internal)

**IMPACT OF NH-16 VEHICULAR POLLUTION  
ON PLANT MORPHOLOGY, ANATOMY,  
PHYSIOLOGY AND BIOCHEMISTRY IN  
CHATRAPUR AREA**

For Partial Fulfillment of  
The Degree of  
**Master of Science**

Submitted by:  
**Itisri Andia**  
Roll no.: 24BOTA0028  
Registration no.: 21072/2024

Guided By:  
**Dr. Pranati Nayak,**  
Assistant Professor  
Department of Botany



**Government Science College, Chatrapur,  
Ganjam**  
Academic session: 2024-2026

## DECLARATION

I hereby declare that the project report entitled "IMPACT OF NH-16 VEHICULAR POLLUTION ON PLANT MORPHOLOGY, ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY IN CHATRAPUR AREA" being submitted by me to Government Science College, Chatrapur for the fulfillment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted jointly by myself, Shubhasree Nayak and Baichandra Bhati under the supervision of Dr. Pranati Nayak, Assistant Professor, Department of Botany, Government Science College, Chatrapur. No part of this work or in full form has been submitted to any other institute for a similar Degree or Diploma. The assistance and help received during the course of this investigation have been duly acknowledged.

*Itisri Andia*

Name : Itisri Andia

University Roll No.: 24BOTA0028

Registration No.: 21072/2024

*Examined - 2026  
BOTA - D - 405 -  
M.Sc. (Botany) Sem - 4*

*Shubhasree Nayak*  
*14.05/26*

*External*

*P. Nayak*  
*14/5/26*  
*(Internal)*

# **Carbohydrate Profiling In Minor Millets In Relation To Major Cereals**

Thesis submitted to the  
GOVERNMENT SCIENCE COLLEGE, CHATRAPUR  
IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR  
THE DEGREE OF MASTERS OF SCIENCE IN

BOTANY

BY

**KALYANI SAMAL**

EXAM ROLL NO- 24BOTA0029

REGISTRATION NUMBER- 21073/2024

UNDER THE GUIDENCE OF

**DR. (MRS.) S.S.SARDAR**

LECTURER DEPARTMENT OF BOYANY

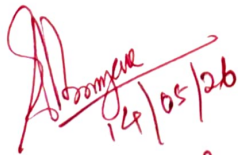


**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR**  
**Odisha -761020**

## 1. DECLARATION

I hereby declare that "**Carbohydrate profiling in minor millets in relation to major cereals**" is the original piece of work carried out by me under the guidance of **Dr. Suchinnata Swapnasarita Sardar** for the degree of masters of science in botany in Government Science College, Chatrapur .I also declare that this project is the outcome of my own efforts and that it has not been submitted to any other University or Institution for any other degree or diploma certificate.

Examined-2026  
BOTA - D - 405  
M.Sc. (Bot) 4th Sem.

  
14/05/26  
External

P. Nayak  
14/5/26  
(Internal)

NAME- KALYANI SAMAL

ROLL NO - 24BOTA0029

MENTOR- DR. (MRS) S. S. SARDAR

Kalyani Samal  
SIGNATURE OF STUDENT

**EFFECT OF COPPER SULFATE PENTAHYDRATE STRESS ON  
SEED GERMINATION AND EARLY SEEDLING GROWTH OF  
MUNG BEAN(*Vigna radiata* )**

DISSERTATION SUBMITTED FOR THE PARTIAL FULFILMENT OF THE  
MASTER'S DEGREE IN BOTANY ( SESSION 2024 – 2026 )

BY

**KUMARI SONALI NAYAK**

Exam Roll No - 24BOTA0030

Class Roll No - BOTA-24-009

Registration No – 08353/2018

UNDER THE GUIDANCE

OF

**MISS ANKITA PATTNAIK**

GUEST FACULTY

DEPARTEMENT OF

BOTANY



**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR, GANJAM**

**ODISHA - 761020**

## DECLARATION

I hereby declare that the project entitled

“ Effect of copper sulphate pentahydrate stress on seed germination and early seedling growth of mung bean ( *Vigna radiata* ) ” has been carried out by me under the supervision and guidance of Miss Ankita Pattnaik guest faculty, Department of Botany, Government Science College, Chatrapur, Ganjam.

To the best of my knowledge and belief, this project work is original and has not been submitted elsewhere for the award of any degree, diploma, or other academic qualification.

Kumari Sonali Nayak

Name – Kumari Sonali Nayak  
University Roll No – 24BOTA0030  
Registration No - 08353/2018

Examined -- 2026  
BOTA - D - 405  
M. Sc. 4th Sem. 2026

  
14/05/26  
External

P. Nayak  
14/5/26  
(Internal)

**Comparative Study of Effect of Solid and Liquid Manure on Growth of *Trigonella foenum graecum***

**Dissertation Thesis submitted in partial compliance for the degree**

**Of**

**Master of Science in Botany**

**Submitted by**

**Pinki Pradhan**

**Roll No. - 24BOTA033**

**Registration No. - 21074/2024**



**Department of Botany, Government Science College,  
Ganjam, Chatrapur, Odisha, India**

**Under the Supervision of**

**Dr. Milimita Padhi**

**Lecturer**

**Department of Botany,**

**Government Science College, Chatrapur - 761020,**

**Odisha, India.**



Department of botany  
Government science college,  
Chatrapur, Ganjam , Pin-761020 , Odisha

Ref: .....

Date: 14.05.2026

### DECLARATION

I hereby declare that the dissertation entitled " **Comparative study of effect of solid and liquid manure on growth of *Trigonella foenum-graecum* L.** " submitted by me for partial compliance for the degree of Master of Science in Botany has been carried out at the Department of Botany, Government Science College, Chatrapur, Ganjam, Pin: 761020, Odisha under the supervision and guidance of Dr Milimita padhi , Lecturer, Department of Botany. As per the regulations of the university, it is certified that the work is original and has not been submitted earlier, in part or full, for any other degree or diploma of this or any other university.

Place: Chatrapur

Pinki Pradhan  
Pinki Pradhan

Date: 14.05.2026

(candidate)

Roll no- 24BOTA0033

Examined - 2026  
BOTA - D - 2026  
M. Sc. 4th Sem.

Sharma  
14/05/2026  
External

P. Nayak  
14/5/26  
(Internal)

**EFFECT OF COPPER SULFATE PENTAHYDRATE STRESS ON  
SEED GERMINATION AND EARLY SEEDLING GROWTH OF  
METHI( *Trigonella foenum-graecum* )**

DISSERTATION SUBMITTED FOR THE PARTIAL FULFILMENT OF THE  
MASTER OF SCIENCE ( SESSION 2024 – 2026 )

BY

**PRIYANKA PRIYADARSINI SAMAL**

Exam Roll No - 24BOTA0034

Class Roll No - BOTA-24-008

Registration No - 21075/2024

UNDER THE GUIDANCE

OF

**MISS ANKITA PATTNAIK**

GUEST FACULTY

DEPARTEMENT OF BOTANY



**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR, GANJAM**

**ODISHA - 761020**

## DECLARATION

I here by declare that the project entitled


" Effect of copper sulfate pentahydrate stress on seed germination and early seedling growth of methi ( *Trigonella foenum-graecum* ) " has been carried out by me under the supervision and guidance of Miss Ankita Pattnaik guest faculty, Department of Botany, Government Science College, Chatrapur, Ganjam.

To the best of my knowledge and belief, this project work is original and has not been submitted elsewhere for the award of any degree, diploma, or other academic qualification.

Priyanka Priyadarsini Samal

Name - Priyanka Priyadarsini Samal  
University Roll No - 24BOTA0034  
Registration No - 21075/2024

Examined - 2026  
BOTA - D - 405  
M. Sc. (Bot.) 4<sup>th</sup> Sem.

  
14/05/2026  
External

P. Nayak  
14/5/26  
(Internal)

**TOPIC:- FRACTIONATION AND CHARACTERIZATION OF MILLET SEED  
PROTEIN:INSIGHT INTO ALBUMIN,GLOBULIN,GLUTELIN,AND  
PROLAMINE COMPOSITION**

**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR**

In partial fulfilment for award of the  
Degree of Master of Science in Botany

(2024-26)



**SUBMITTED BY:**

**RAJESWARI BEHERA**

**EXAM Roll no: 24BOTA0035**

**COLLEGE Roll no: BOTA24-006**

**Under the supervision of**

**DR. SUCHINNATA SWAPNASARITA SARDER**

**Department of Botany**

**Government Science College, Chatrapur, Odisha**

**P.G. Department of Botany**

**Government Science College, Chatrapur**

**Ganjam, Odisha, 761020.**

### DECLARATION

I, the undersigned Rajeswari Behera, a student of Master of Science in Botany, Department of Botany, Govt. Science College chatrapur, hereby declare that the research work entitled "Fractionation and Characterization of Millet Seed Proteins: Insights into Albumin, Globulin, Glutelin, and Prolamin Composition" has been carried out under the esteemed guidance of Dr. SUCHINNATA SARITA SARDAR. I affirm that this project is an original piece of work and has not been submitted, either wholly or partially, for any other degree or diploma at this or any other university.

NAME - RAJESWARI BEHERA


ROLLNO - 24BOTA0035

Regd no - 44692/2020

Examined - 2026

BOTA - D - 405

M.Sc. (Bot.) 4<sup>th</sup> Sem.

  
14.05.26

External

P. Nayak  
14.5.26

(Internal)

**IMPACT OF NH-16 VEHICULAR POLLUTION  
ON PLANT MORPHOLOGY, ANATOMY,  
PHYSIOLOGY AND BIOCHEMISTRY IN  
CHATRAPUR AREA**

For Partial Fulfillment of  
the Degree of  
**Master of Science**

Submitted by:  
**SHUBHASREE NAYAK**  
Roll no.: 24BOTA0036  
Registration no.: 43086/2017

Guided By:  
**Dr. PRANATI NAYAK**  
Assistant Professor  
Department of Botany



**Government Science College, Chatrapur,  
Ganjam**  
Academic session: 2024-2026

## DECLARATION

I hereby declare that the project report entitled "IMPACT OF NH-16 VEHICULAR POLLUTION ON PLANT MORPHOLOGY, ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY IN CHATRAPUR AREA" being submitted by me to Government Science College, Chatrapur for the fulfillment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted jointly by myself, Itisri Andia and Baichandra Bhati under the supervision of Dr. Pranati Nayak, Assistant Professor, Department of Botany, Government Science College, Chatrapur. No part of this work or in full form has been submitted to any other institute for a similar Degree or Diploma. The assistance and help received during the course of this investigation have been duly acknowledged.

*Shubhasree Nayak*

Name : Shubhasree Nayak

University Roll No.: 24BOTA0036

Registration No.: 43086/2017

*Experi*

*Examined-2026  
BOTA - D - 405  
M.Sc. (Bot.) 4th Sem.*

*Pranati  
14-05-2026  
External*

*P. Nayak  
14/5/26  
(Internal)*

**Comparative study effect of solid and liquid manure on growth of  
spinach (*spinacia oleracea*)**

Dissertation Thesis submitted in partial compliance for the degree of  
Masters of Science in botany

**Submitted by**

**SIMRAN SAMANTARAY**

**Roll no – 24BOTA0037**

**Registration number – 21076/2024**



**Department of botany, government science college**

**Ganjam , Chatrapur, Odisha, India**

**Under the Supervision of**

**Dr milimita padhi**

**Lecturer**

**Department of botany**



Department of botany  
Government science college,  
Chatrapur, Ganjam , Pin-761020 , Odisha

Ref: .....

Date: 14.05.26

### DECLARATION

I hereby declare that the dissertation entitled " **Comparative study of solid and liquid manure on growth of spinach (spinacia oleracwa) Growth on absorbent cotton** " submitted by me for partial compliance for the degree of Master of Science in Botany has been carried out at the Department of Botany, Government Science College, Chatrapur, Ganjam, Pin: 761020, Odisha under the supervision and guidance of Dr Milimita padhi , Lecturer, Department of Botany. As per the regulations of the university, it is certified that the work is original and has not been submitted earlier, in part or full, for any other degree or diploma of this or any other university.

Place: chatrapur

Date: 14.05.26

*Simran Samantaray*  
SIMRAN SAMANTARAY

(candidate)

Roll no- 24BOTA0037

# **GROWTH ANALYSIS OF FENUGREEK UNDER ORGANIC AND INORGANIC FERTILIZER TREATMENTS**

A

Project submitted to

**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR**

In partial fulfilment for award of the Degree of

Master of Science in Botany (2024-26)

Submitted by:

**SULTANA BEGUM**

Exam Roll no: 24BOTA0038

College Roll no: BOTA24-003

Registration no: 23201/2020

Under the supervision of

**MISS. IPSITA PALAI**

Department of Botany

Government Science College, Chatrapur, Odisha



**P.G. Department of Botany**

**Government Science College, Chatrapur**

**Ganjam, Odisha, 761020.**

## DECLARATION


I do hereby declare that the work presented in this dissertation entitled "GROWTH ANALYSIS OF FENUGREEK UNDER ORGANIC AND INORGANIC FERTILIZER TREATMENTS" carried out by Roll No. 24BOTA0038 is an original work done and submitted by me in the fulfilment for the degree of Master of Science in Botany, Government Science College, Chatrapur. This is an original work done by me under the guidance and supervision of Miss Ipsita Palai, P.G. department of Botany, Government Science College, Chatrapur, PIN761020.

Further, I declare that it has not been submitted or published so far, partially, or fully for the degree of master's in science or any other degree of any college or institution.

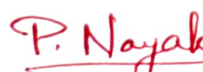
Examined -2026

BOTA - D - 405

M.Sc. (Bot.) - 4<sup>th</sup> Sem.

  
14.05.2026

External

  
14.5.26  
(Internal)

Sultana Begum .  
Sultana Begum

**INVESTIGATION OF BIOACTIVE PHYTOCHEMICALS IN  
MINOR MILLETS FOR NUTRITIONAL & THERAPEUTIC  
POTENTIAL.**

For Partial Fulfilment Of  
The Degree Of  
Master Of Science

Submitted by :

Sunali Behera

Roll no.:24BOTA0039

Registration No.:25402/2024

Guided by.:

Dr. Suchinnata Swapnasarita Sardar

Assistant professor

Department of botany



**GOVERNMENT SCIENCE COLLEGE , CHATRAPUR**

**GANJAM**

**ACADEMIC SESSION:2024-2026**


## DECLARATION

I do hereby declare that the work presented in this project entitled "INVESTIGATION OF BIOACTIVE PHYTOCHEMICALS IN MINOR MILLETS FOR NUTRITIONAL & THERAPEUTIC POTENTIAL" was carried out by me for the degree of Master of Science in Botany. This is an original work done by me under the guidance and supervision of Dr. Suchinnata Swapnasarita Sardar, professor, P.G Department of Botany, Government Science College, Chatrapur, PIN – 761020.

Further, I declare that it has not been submitted or published so far, particularly or fully for the degree of M.Sc. or any other degree of any university or institution.

Examined - 2026  
BOTA - D - 405  
M.Sc. (Bot.) 4<sup>th</sup> sem.

Sunali Behera  
Name : Sunali Behera  
University Rollno : 24BOTA0039  
Registration No. : 25402/2024

  
14.05.2026  
External

P. Nayak  
14.5.26  
(Internal)

**EFFECT OF COPPER SULFATE PENTAHYDRATE STRESS ON  
SEED GERMINATION AND EARLY SEEDLING GROWTH OF  
MUSTARD (*Brassica Nigra*)**

DISSERTATION SUBMITTED FOR THE PARTIAL FULFILMENT OF THE  
MASTER OF SCIENCE IN BOTANY (SESSION 2024 – 2026)

BY

**SWARNAMAYEE GOUDA**

Exam Roll No-24BOTA0040

Class Roll No-BOTA-24-010

Registration No - 06737/2021

UNDER THE GUIDANCE

OF

**MISS ANKITA PATTNAIK**

GUEST FACULTY

DEPARTEMENT OF BOTANY



**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR, GANJAM**

**ODISHA - 761020**


## DECLARATION

I hereby declare that the project entitled

"Effect of copper sulfate pentahydrate stress on seed germination and early seedling growth of mustard (*Brassica Nigra*)" has been carried out by me under the supervision and guidance of Miss Ankita Pattnaik guest faculty, Department of Botany, Government Science College, Chatrapur, Ganjam.

To the best of my knowledge and belief, this project work is original and has not been submitted elsewhere for the award of any degree, diploma, or other academic qualification.

Examined- 2026  
BOTA - D - 405  
M.Sc. (BOT) - 4<sup>th</sup> Sem.

  
14-05-2026

External

P. Nayak  
14.05.26  
(Internal)

Swarnamayee Gouda  
Name-Swarnamayee Gouda  
University Roll No-24BOTA0040  
Registration No - 06737/2021