

Phenotype characteristics of *Brassica nigra* under salt stress

Dissertation Thesis submitted in partial compliance for the degree of
Master of Science in Botany

Submitted By

Barsha Biswal

Roll no- 23BOTA055

Registration no-20064/2023



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

Under the Supervision of

Dr Manas Kumar Tripathy
Assistant Professor
Department of Botany,
Government Science College, Chatrapur-761020,
Odisha, India

Enclosed
From
08/05/2025



Department of Botany
Government Science College, Chatrapur, Ganjam,
Pin: 761020 (Odisha)

Ref:.....

Date: 08/05/2025

DECLARATION

I hereby declare that the dissertation entitled "**Phenotype characteristics of *Brassica nigra* under salt stress**" 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 Manas Kumar Tripathy, Assistant Professor, 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: 08/05/2025

Barsha Biswal

Barsha Biswal

Candidate

Phenotype characteristics of *Vigna radiata* under salt stress

Dissertation Thesis submitted in partial compliance for the degree of

Master of Science in Botany

Submitted by

Gorachana Rout

Roll no -23BOTA056

Registration no -20065/2023



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

Under the Supervision of

Dr Manas Kumar Tripathy
Assistant Professor
Department of Botany,
Government Science College, Chatrapur-761020, Odisha, India



Department of Botany
Government Science College, Chatrapur, Ganjam,
Pin: 761020 (Odisha)

Ref:.....

Date: 07.05.2025

DECLARATION

I hereby declare that the dissertation entitled "**Phenotype characteristics of *Vigna radiata* under salt stress**" 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 Manas Kumar Tripathy, Assistant Professor, 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: 07.05.2025

Gorachana Rout

Gorachana Rout

Candidate

**ESSENTIAL OILS, FRAGRANCE AND FLAVOUR &
QUALITY ANALYSIS BY GAS CHROMATOGRAPHY**



FRAGRANCE & FLAVOUR DEVELOPMENT CENTRE Ext. Unit, Berhampur

A Thesis Submitted To Department Of Botany



GOVERNMENT SCIENCE COLLEGE, CHATRAPUR

(2023-25)

MASTER OF SCIENCE IN BOTANY

BY

JAGADISH SAHU

ROLL NO: -23BOTA057

UNDER THE GUIDANCE OF

SRI V.V. RAMA RAO

Scientific Officer of FFDC Extn. Unit. , Berhampur

1. DECLARATION

I hereby declare that "EXTRACTION AND QUALITY ANALYSIS OF LEMON GRASS (*Cymbopogon citratus*) ESSENTIAL OIL USING GAS CHROMATOGRAPHY" ' is the original piece of work carried out by me under the guidance of **V. V. Rama Rao** and **Dr milimita padhi** 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.

PLACE: Chatrapur, odisha

NAME: jagadish sahu

DATE:

ROLL NUMBER: 23BOTA057

MENTOR: Dr. milimita padhi

SIGNATURE OF THE MENTOR

Jagadish Sahu
SIGNATURE OF THE STUDENT

Pranendu
23/05/2025

**ESSENTIAL OILS, FRAGRANCE AND FLAVOUR &
QUALITY ANALYSIS BY GAS CHROMATOGRAPHY**



FRAGRANCE & FLAVOUR DEVELOPMENT CENTRE Ext. Unit, Berhampur

A Thesis Submitted To Department Of Botany



GOVERNMENT SCIENCE COLLEGE, CHATRAPUR

(2023-25)

MASTER OF SCIENCE IN BOTANY

BY

P. ALPITA PATRO

ROLL NO: -23BOTA060

UNDER THE GUIDANCE OF

SRI V.V. RAMA RAO

Scientific Officer of FFDC Extn. Unit. , Berhampur

1. DECLARATION

I hereby declare that "ESSENTIAL OIL, FRAGRANC AND FLAVOR & ITS QUALITY ANALYSIS THROUGH GAS CHROMATOGRAPHY" ' is the original piece of work carried out by me under the guidance of **V. V. Rama Rao** and **Dr Milimita Padhi** 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.

PLACE: Chatrapur, Odisha

NAME: P. Alpita Patro

DATE: 7/05/25

ROLL NUMBER: 23BOTA060

MENTOR: Dr Milimita Padhi

P. ALPITA PATRO
SIGNATURE OF THE STUDENT

**ESSENTIAL OILS, FRAGRANCE AND FLAVOUR &
QUALITY ANALYSIS BY GAS CHROMATOGRAPHY**



FRAGRANCE & FLAVOUR DEVELOPMENT CENTRE Ext. Unit, Berhampur

A Thesis Submitted To Department Of Botany



GOVERNMENT SCIENCE COLLEGE, CHATRAPUR

(2023-25)

MASTER OF SCIENCE IN BOTANY

BY

PRABHUDATTA PATTANAİK

ROLL NO: -23BOTA061

UNDER THE GUIDANCE OF

SRI V.V. RAMA RAO

Scientific Officer of FFDC Extn. Unit. , Berhampur

2.ACKNOWLEDGEMENT

I, Prabhudatta Pattanaik would like to express my sincere gratitude to my mentor **Dr. Milimita Padhi**, Lecturer of Department of Botany, Government science college, Chatrapur, Odisha for their advice and permission to carry out my project work at FFDC, Berhampur.

I would like to thank my guide, **V.V.Rama Rao & Bibekananda sarangi** for guiding me in each and every step and provide me a golden opportunity to do this wonderful project on "ESSENTIAL OIL, FRAGRANC AND FLAVOR & ITS QUALITY ANALYSIS THROUGH GAS CHROMATOGRAPHY". This project helped me to head upon lots of studies on research paper, review, articles regarding my project and to gain valuable knowledge about many new topics and concepts.

Prabhudatta pattanaik

PRABHUDATTA PATTANAİK

Phenotype characteristics of Finger millet (*Eleusine coracana L.*) under salt stress

Dissertation Thesis submitted in partial compliance for the degree of
Master of Science in Botany

Submitted by

Rasmita Kumari Sahu

Roll no - 23BOTA062 Registration no – 04661/2020



Department of Botany,
Government Science College, Chhatrapur, Odisha, India

Under the Supervision of

Dr Manas Kumar Tripathy
Assistant Professor
Department of Botany,
Government Science College, Chatrapur-761020,
Odisha, India



Department of Botany
Government Science College, Chhatrapur, Ganjam,
Pin: 761020 (Odisha)

Ref:.....

Date:.....

DECLARATION

I hereby declare that the dissertation entitled “**Phenotype characteristics of Finger millet (*Eleusine coracana L.*) under salt stress**” 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, Chhatrapur, Ganjam, Pin: 761020 (Odisha) under the supervision and guidance of Dr Manas Kumar Tripathy, Assistant Professor, 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: Chhatrapur

Date: 08.05.2025

Rasmita Kumari Sahu

Rasmita Kumari Sahu

Candidate

**ESSENTIAL OILS, FRAGRANCE AND FLAVOUR &
QUALITY ANALYSIS BY GAS CHROMATOGRAPHY**



FRAGRANCE & FLAVOUR DEVELOPMENT CENTRE Ext. Unit, Berhampur

A Thesis Submitted To Department Of Botany



GOVERNMENT SCIENCE COLLEGE, CHATRAPUR

(2023-25)

MASTER OF SCIENCE IN BOTANY

BY

RUCHITA SAHU

ROLL NO: -23BOTA064

UNDER THE GUIDANCE OF

SRI V.V. RAMA RAO

Scientific Officer of FFDC Extn. Unit. , Berhampur

1. DECLARATION

I, Hereby Declare That "ESSENTIAL OIL, FRAGRANC AND FLAVOR & ITS QUALITY ANALYSIS THROUGH GAS CHROMATOGRAPHY" is the result of the original piece of project work carried out by me under the guidance of **Mr.V.V.Rama Rao** and **Dr.Milimita Padhi** For the degree of Master of Science in Botany by 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 Institute for the award of any other degree or Diploma certificate.

PLACE: Chatrapur , Odisha

DATE: 07/05/2025

NAME: Ruchita Sahu

ROLL NO. -23BOTA064

MENTOR: Dr.Milimita Padhi

Ruchita Sahu

SIGNATURE OF THE STUDENT

A project report of
**Preliminary Phytochemical
Investigation and GC MS Profiling of
Essential oil of
*Hyptis suaveolens (L) Poit***

Submitted for the partial fulfilment of the degree of M.Sc.
in Botany

Submitted By:-

Samita Gouda

M.Sc. Final Year 4th Semesters

Examination Roll No. :- 23BOTA065

Registration no. :- 44715/2020

Supervised By:-

Dr. Pranati Nayak

Assistant Professor of Botany



Department of Botany

Government Science College , Chatrapur , Ganjam

May / 2025

DECLARATION

I hereby declare that the project report entitled "**Preliminary Phytochemical Investigation and GC MS Profiling of Essential Oil of *Hyptis suaveolens (L) Poit.***" being submitted by me to Government Science College, Chatrapur for the fulfilment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted by myself 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.


Samita Gouda

Roll no. - 23BOTA065

Registration no. - 44715/2020

Department of Botany

Government Science College, Chatrapur

A project report of
**Preliminary Phytochemical
Investigation and GC MS Profiling of
Essential oil of
*Hyptis suaveolens (L) Poit***

Submitted for the partial fulfilment of the degree of M.Sc.
in Botany

Submitted By:-

Tapaswini Sahu

M.Sc. Final Year 4th Semesters

Examination Roll No. :- 23BOTA066

Registration no. :- 20068/2023

Supervised By:-

Dr. Pranati Nayak

Assistant Professor of Botany



Department of Botany

Government Science College , Chatrapur , Ganjam

May / 2025

DECLARATION

I hereby declare that the project report entitled "**Preliminary Phytochemical Investigation and GC MS Profiling of Essential Oil of *Hyptis suaveolens* (L) Poit.**" being submitted by me to Government Science College, Chatrapur for the fulfilment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted by myself 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.

Tapaswini Sahu
Tapaswini Sahu 07/05/2025

Roll no. - 23BOTA066

Registration no. – 20068/2023

Department of Botany

Government Science College, Chatrapur

A project report of
**Preliminary Phytochemical
Investigation and GC MS Profiling of
Essential oil of
*Hyptis suaveolens (L) Poit***

Submitted for the partial fulfilment of the degree of M.Sc.
in Botany

Submitted By:-

Rita Gamango

M.Sc. Final Year 4th Semesters

Examination Roll No. :- 23BOTA063

Registration no. :- 11221/2019

Supervised By:-

Dr. Pranati Nayak

Assistant Professor of Botany



Department of Botany

Government Science College , Chatrapur , Ganjam

May / 2025

DECLARATION

I hereby declare that the project report entitled "**Preliminary Phytochemical Investigation and GC MS Profiling of Essential Oil of *Hyptis suaveolens (L) Poit.***" being submitted by me to Government Science College, Chatrapur for the fulfilment of the requirement of the award of the Degree of Master in Science, (Botany) is an original and authentic research work conducted by myself 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.

Rita Gamango
Rita Gamango

Roll no. - 23BOTA063

Registration no. – 11221/2019

Department of Botany

Government Science College, Chatrapur

Phenotype characteristics of *Vigna mungo* under salt stress

Dissertation Thesis submitted in partial compliance for the degree

of

Master of Science in Botany

Submitted by

MANJULA PRADHAN

Roll no - 23BOTA059

Registration no – 3300/2016



Department of Botany, Government Science College,
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Under the Supervision of

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Department of Botany
Government Science College, Chatrapur, Ganjam,
Pin: 761020, Odisha

Ref:

Date: 07.05.2025

DECLARATION

I hereby declare that the dissertation entitled "**Phenotype characteristics of *Vigna mungo* under salt stress**" 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 Manas Kumar Tripathy, Assistant Professor, 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: 07.05.2025

Manjula Pradhan.

Manjula Pradhan

(Candidate)