

**“Quantification of IAA Produced by Endophytic bacteria Isolated from
Centella asiatica (L.) Urb. and Phytochemical Characterization of its leaf
Extract”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

AMBILI TV

Reg No: CRAVMBT001

Under the guidance of

Dr. DHANYA THOMAS T T



**PG and Research Department of Botany
Carmel College (Autonomous) Mala
March-2023**

PG AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS) MALA



CERTIFICATE

This is to certify that the dissertation entitled “Quantification of IAA Produced by Endophytic bacteria Isolated from *Centella asiatica* (L.) Urb. and Phytochemical Characterization of it’s leaf Extract” is a record of bonafide project work successfully completed by **AMBILI T V** with Reg. No. **CRAVMBT001**, Department of Botany, Carmel College (Autonomous) Mala under the supervision and guidance of Dr. Dhanya Thomas T T, Assistant professor in Post Graduate and Research Department of Botany, for the partial fulfilment of requirement for the degree of Master of Science in Botany.

Dr. Dhanya Thomas T T

Supervising Teacher

Examiner 1:

2/8/2023.

Examiner 2:

2/8/23.

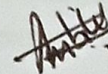
Dr. Bindhu K. B

Head of Department

Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

DECLARATION

I hereby declare that the dissertation entitled “**Quantification of IAA Produced by Endophytic bacteria Isolated from *Centella asiatica* (L.) Urb. and Phytochemical Characterization of it’s leaf Extract**” submitted to the university of Calicut for the award of degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of Dr. Dhanya Thomas T T, Assistant professor, Post Graduate and Research Department of Botany, Carmel College (Autonomous) Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution.



AMBILI T V

Place: Mala

Date: 27/07/2023

**Bioactivity studies in aqueous leaf extract of
Acalypha hispida Brum F. (Euphorbiaceae)**

This dissertation is submitted to the
UNIVERSITY OF CALICUT
In partial fulfilment for the award of the degree of
MASTER OF SCIENCE IN BOTANY

Submitted by

AMY JAYACHANDRAN

Reg No: CRAVMBT002

Under the guidance of

Dr. Sinjumol Thomas



PG and Research Department of Botany

Carmel College (Autonomous) Mala

2022 – 2023

PG AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS) MALA

680732



CERTIFICATE

This is to certify that the dissertation entitled “Bioactivity studies in aqueous leaf extract of *Acalypha hispida* Brum F. (Euphorbiaceae)” is a record of bonafide project work successfully completed by **AMY JAYACHANDRAN** with Reg. No **CRAVMBT002**, Department of Botany, Carmel College Mala under the supervision and guidance of Dr. Sinjumol Thomas, Assistant Professor in Post Graduate and Research Department of Botany, for the partial fulfilment of requirement for the degree of Master of Science in Botany.

Supervising Teacher

Dr. Sinjumol Thomas

DR. SINJUMOL THOMAS
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Dr. BINDHU K.B.
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Mala, Thrissur-680 732

Examiner 1:

Amy Jayachandran
2/8/23

Examiner 2:

Dr. M.
2/8/2023

DECLARATION

I hereby declare that the dissertation entitled “**Bioactivity studies in aqueous leaf extract of *Acalypha hispida* Brum F. (Euphorbiaceae)**” submitted to the university of Calicut for the award of degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of Dr Sinjumol Thomas, Assistant Professor, Post Graduate and Research Department of Botany, Carmel College (Autonomous) Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution.

Place: Mala

Date: 27/07/2023



Amy Jayachandran

IInd M.Sc. Botany

Carmel College Mala

"AN INVESTIGATION INTO THE MECHANISMS BEHIND SUCCESSFUL INVASIVENESS IN
Mimosa diplotricha C. Wright - A NOXIOUS WEED."

This dissertation is submitted to the
UNIVERSITY OF CALICUT
for the partial fulfilment of the award of the degree of
MASTER OF SCIENCE IN BOTANY

Submitted

by

ANAGHA ARAVIND

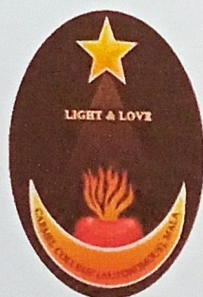
CRAVMBT003

UNDER THE SUPERVISION OF

Dr. Sr. Kochuthresia K. P

Assistant Professor

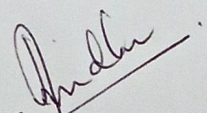
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DEPARTMENT OF BOTANY
CARMEL COLLEGE, (AUTONOMOUS) MALA
THRISSUR, KERALA

2022-2023


Supervisor


Head of the Department

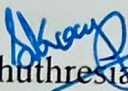
Dr. BINDHU K. B.
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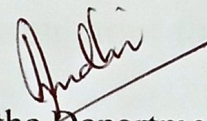
POST GRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE, MALA

CERTIFICATE

This is to certify that the dissertation entitled "AN INVESTIGATION INTO THE MECHANISMS BEHIND SUCCESSFUL INVASIVENESS IN *Mimosa diplotricha* C. Wright - A NOXIOUS WEED." is a record of bonafide project work successfully completed by ANAGHA ARAVIND with Reg No. CRAVMBT003, Department of Botany, Carmel College, Mala under the supervision and guidance of Dr. Sr. Kochuthresia K. P, Assistant Professor, Carmel College (Autonomous) Mala, for the partial fulfillment of requirement for the degree of Master of Science in Botany.

Guide

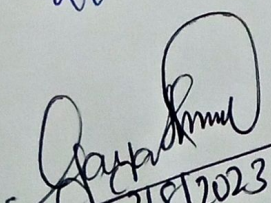

Dr. Kochuthresia K. P. 31/7/23


Head of the Department

Dr. Bindhu. K. B

Valued

1. In 21/8/2023

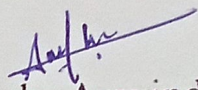
2. 
21/8/2023

DECLARATION

I hereby declare that the dissertation entitled "AN INVESTIGATION INTO THE MECHANISMS BEHIND SUCCESSFUL INVASIVENESS IN *Mimosa diplotricha* C. Wright - A NOXIOUS WEED." submitted to the University of Calicut for the award of the degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of **Dr. Sr. Kochuthresia K.P.**, Assistant professor, Department of Botany, Carmel college, Mala, and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution. All the sources of help received during the work have been acknowledged here.

Place: Mala

Date: 31/07/2023


Anagha Aravind

2nd MSc Botany

Carmel College, Mala

**“Comparative Phytochemical Screening and Antibacterial Activity of
Sida acuta Burm.f. and *Sida rhombifolia* L. Leaves”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

ANCY VARGHESE

Reg No: CRAVMBT004

Under the guidance of

Dr.Sr.Kochuthressia K P



PG and Research Department of Botany

Carmel College (Autonomous) Mala

2022 – 2023

PG AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS) MALA

680732



This is to certify that the dissertation entitled “Comparative Phytochemical Screening and Antibacterial Activity of *Sida acuta* Burm.f. and *Sida rhombifolia* L. Leaves” is a record of bonafide project work successfully completed by ANCY VARGHESE with Reg. No CRAVMBT004, Department of Botany, Carmel College (Autonomous) Mala under the supervision and guidance of Dr.Sr.Kochuthressia K P, Assistant professor in Post Graduate and Research Department of Botany, for the partial fulfilment of requirement for the degree of Master of Science in Botany.

Supervising teacher

Dr.Sr Kochuthressia K P

Head of Department

Dr.Bindhu K B

Examiner 1:

Shemi

CB 02/08/23

Examiner 2:

Jm
2/8/2023

Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

DECLARATION

I hereby declare that the dissertation entitled "**Comparative Phytochemical Screening and Antibacterial Activity of *Sida acuta* Burm.f. and *Sida rhombifolia* L. Leaves**" submitted to the university of Calicut for the award of degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of Dr.Sr. Kochuthressia K P, Assistant professor, Post Graduate and Research Department of Botany, Carmel College (Autonomous) Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution.



Ancy Varghese

Place: Mala

Date: 29-07-2023

**Larvicidal activity of plant extract from
Curcuma zanthorrhiza Roxb. (Zingiberaceae) and the microbiome
associated with it.**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

ANNETTE ANTONY

Reg No: CRAVMBT005

Under the guidance of

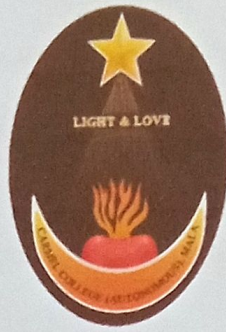
Dr. GEO JOSEPH



**POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS), MALA, THRISSUR**

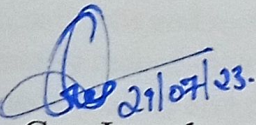
MARCH -2023

POST GRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE, (AUTONOMOUS), MALA



CERTIFICATE

This is to certify that the dissertation entitled "**Larvicidal activity of plant extract from *Curcuma zanthorrhiza* Roxb.(Zingiberaceae) and the microbiome associated with it**" is a record of bonafide project work successfully completed by ANNETTE ANTONY with Reg No. CRAVMBT005, Department of Botany, Carmel College, Mala under the supervision and guidance of Dr. Geo Joseph, Assistant Professor in Post Graduate and Research Department of Botany, for the partial fulfillment of requirement for the degree of Master of Science in Botany.


21/07/23.
Dr. Geo Joseph

Guide

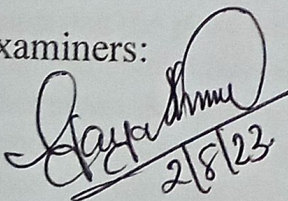
Dr. Bindhu. K.B

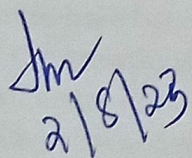

Head of the Department

Dr. BINDHU K.B.

**Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732**

Examiners:

1. 
2/8/23

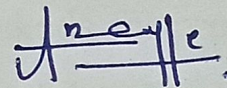
2. 
2/8/23

DECLARATION

I hereby declare that the dissertation entitled “**Larvicidal activity of plant extract from *Curcuma zanthorrhiza* Roxb.(Zingiberaceae) and the microbiome associated with it.**” submitted to the University of Calicut for the award of the degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of **Dr.Geo Joseph**, Assistant Professor, Post Graduate and Research Department of Botany, Carmel College, Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution. All the sources of help received during the work have been acknowledged here.

Place: Mala

Date: 31-07-2023



Anette Antony

II M.Sc. Botany

Carmel College, Mala

**EVALUATION OF PHYTOCHEMICALS, ISOLATION AND IDENTIFICATION OF
FUNGAL ENDOPHYTE IN *Woodfordia fruticosa* (L.) Kurz. LEAVES**

**This dissertation is submitted to the
UNIVERSITY OF CALICUT**

**For the partial fulfillment of the award of the degree of
MASTER OF SCIENCE IN BOTANY**

Submitted by

ARYA RAJ E.R

CRAVMBT006

Under the supervision of

DR.BINDHU K.B



**POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE,(AUTONOMOUS) MALA**

THRISSUR, KERALA

March -2023

POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTONY

CARMEL COLLEGE (AUTONOMOUS), MALA

(Affiliated to the University of Calicut)



CERTIFICATE

This is to certify that the dissertation entitled “**Evaluation of phytochemicals, Isolation and identification of fungal endophyte in *Woodfordia fruticosa* (L.)Kurz. leaves** is a record of bonafide project work successfully completed by **ARYA RAJ E R** with Reg No. **CRAVMBT006**, Department of Botany, Carmel College (Autonomous) Mala, under the supervision and guidance of Dr Bindhu K B, Associate Professor, Head of Post Graduate and Research Department Of Botany, for the partial fulfillment of requirement for the degree of Master of Science in Botany.

Guide

Dr. Bindhu K.B

Head of the Department

Dr. Bindhu K.B

Dr. BINDHU K.B.

**Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732**

Examiners:


1.

2.

DECLARATION

I hereby declare that the dissertation entitled “**Evaluation of phytochemicals, Isolation and identification of fungal endophyte in *Woodfordia fruticosa* (L.)Kurz. leaves..**” submitted to the University of Calicut for the award of the degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of Dr. Bindhu K.B Associate Professor, Head of Post Graduate and Research Department of Botany, Carmel College,(Autonomous) Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution. All the sources of help received during the work have been acknowledged here.

Place : Mala


Name: Arya Raj E.R

Date: 31/7/2023

“Investigation of the tree vegetation in the Community zone of M. S. Swaminathan Botanical Garden (MSSBG) to Develop a micro-level conservation strategy for tree species”

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

ASWATHY VINOD AV

Reg No: CRAVMBT007

Under the guidance of

Dr. JITHIN M.M



**PG and Research Department of Botany
Carmel College (Autonomous) Mala
March-2023**

PG AND RESEARCH DEPARTMENT OF BOTANY

CARMEL COLLEGE (AUTONOMOUS), MALA

(Affiliated to the University of Calicut)



CERTIFICATE

This is to certify that the dissertation entitled **“Investigation of the tree vegetation in the Community zone of M. S. Swaminathan Botanical Garden (MSSBG) to Develop a micro-level conservation strategy for tree species”** is a record of bonafide project work successfully completed by ASWATHY VINOD A V, with Reg. No. CRAVMBT007, Department of Botany, Carmel College, Mala for the partial fulfillment for the award of the Degree of Master of Science in Botany.

Dr. Dhanya Thomas T T

Dr. Bindhu K B

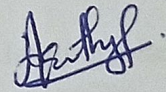
Dr. BINDHU K.B.
Associate Professor & Research Guide (HOD)
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

Examiners 1.

Examiners 2.

DECLARATION

I, Aswathy Vinod A V hereby declare that the dissertation entitled "**Investigation of the tree vegetation in the Community Zone of M. S. Swaminathan Botanical Garden (MSSBG) to Develop a micro-level conservation strategy for tree species**" submitted to the University of Calicut in partial fulfilment of the requirements for the award of the Degree of Master of Science is a record of original research work done by me during the study period under the supervision and guidance of **Dr. JITHIN M.M, Development Coordinator, M S Swaminathan Research Foundation ,Community Agrobiodiversity Centre, Wayanad** and it has not formed the basis of any other Degree/ Diploma/Associateship/ Fellowship and it represents the original research work done by me.



Aswathy Vinod A V

Place: Wayanad

Date: 22/07/2023

**Preliminary Phytochemical Analysis and Selected Bioactivity Studies
in *Nerium oleander* L. (Apocynaceae)**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

ATHIRA.M

Reg No: CRAVMBT008

Under the guidance of

Dr. Sinjumol Thomas



**POST GRADUATE AND RESEARCH DEPARTMENT OF
BOTANY**

CARMEL COLLEGE (AUTONOMOUS) MALA

THRISSUR, KERALA

2022-2023

PG AND RESEARCH DEPARTMENT OF BOTANY

CARMEL COLLEGE (AUTONOMOUS) MALA

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CERTIFICATE

This is to certify that the dissertation entitled "**Preliminary Phytochemical Analysis and Selected Bioactivity Studies in *Nerium oleander L.***" is a record of bonafide project work successfully completed by **ATHIRA.M** with Reg No. **CRAVMBT008**, Department of Botany, Carmel College, Mala under the supervision and guidance of Dr. Sinjumol Thomas, Assistant Professor in Post Graduate and Research Department of Botany, for the partial fulfilment of requirement for the degree of Master of Science in Botany.

Supervising Teacher

Dr. Sinjumol Thomas

DR. SINJUMOL THOMAS
Assistant Professor & Research Guide
Department of Botany

Head of the Department

Dr. Bindhu. K. B

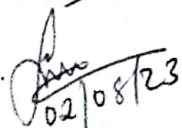
Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Maia, Thrissur-680 732

Examiners:

1.


21/08/23

2.


02/08/23

DECLARATION

I hereby declare that the dissertation entitled "**Preliminary Phytochemical Analysis and Selected Bioactivity Studies in *Nerium oleander* L. (Apocynaceae)**" submitted to the University of Calicut for the award of the degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of **Dr. Sinjumol Thomas**, Assistant Professor, Post Graduate and Research Department of Botany, Carmel College, Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution. All the sources of help received during the work have been acknowledged here.



Athira.M

Place: Mala

Date: 31-07-2023

2nd MSc B Botany

Carmel College, Mala

**“ALLELOPATHIC INFLUENCE OF *Tinospora cordifolia* (Willd.)
Miers AND THE CHARACTERIZATION OF ENDOPHYTIC
BACTERIA”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

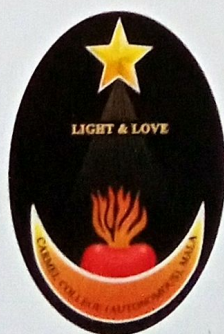
Submitted by

GLORIA VARGHESE

Reg No: CRAVMBT009

Under the guidance of

Dr. Roby T. J



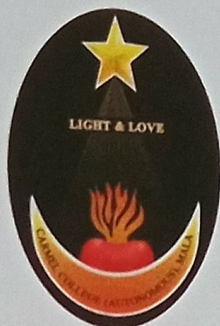
PG and Research Department of Botany

Carmel College (Autonomous) Mala

March 2023

**PG AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS) MALA**

680732



CERTIFICATE

This is to certify that the dissertation entitled “**Allelopathic influence of *Tinospora cordifolia* (Willd.) Miers and the characterization of endophytic bacteria**” is a record of bonafide project work successfully completed by **GLORIA VARGHESE** with Reg. No. **CRAVMBT009**, Department of Botany, Carmel College (Autonomous) Mala under the supervision and guidance of Dr. Roby T. J, Assistant professor in Post Graduate and Research Department of Botany, for the partial fulfilment of requirement for the degree of Master of Science in Botany.

Dr. Roby T. J

Department of Botany

Carmel College (Autonomous) Mala

Dr. Bindhu. K.B

Head of the Department

Department of Botany

Carmel College
(Autonomous) Mala

Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

Examiner 1:

Examiner 2:

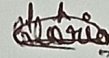
DECLARATION

I hereby declare that the dissertation entitled "**Allelopathic influence of *Tinospora cordifolia* (Willd.) Miers and the characterization of endophytic bacteria**" submitted to the university of Calicut for the award of degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of Dr. Roby T. J, Assistant professor, Post Graduate and Research Department of Botany, Carmel College (Autonomous) Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution.

Place: Mala

Gloria Varghese

Date: 31/07/2023



**Chemical composition, Phytotoxicity, Anthelmintic and Larvicidal
activities of *Morinda citrifolia* L. (Rubiaceae)**

This dissertation is submitted to the
UNIVERSITY OF CALICUT
For the partial fulfillment of the award of the degree of
MASTER OF SCIENCE IN BOTANY

Submitted by
MEGHA V
CRAVMBT010
Under the supervision of
DR. SINJUMOL THOMAS



POST GRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE, (AUTONOMOUS) MALA
THRISSUR, KERALA
2022-2023

POST GRADUATE AND RESEARCH DEPARTMENT OF BOTANY

CARMEL COLLEGE, (AUTONOMOUS) MALA

(Affiliated to the University of Calicut)

68732



CERTIFICATE

This is to certify that the dissertation entitled “**Chemical composition, Phytotoxicity, Anthelmintic and Larvicidal activities of *Morinda citrifolia* L. (Rubiaceae).**” is a record of bonafide project work successfully completed by **MEGHA V** with Reg No. **CRAVMBT010**, Department of Botany, Carmel College, Mala under the supervision and guidance of Dr. Sinjumol Thomas, Assistant Professor in Post Graduate and Research Department of Botany, for the partial fulfillment of requirement for the degree of Master of Science in Botany.

Supervising Teacher

Dr. Sinjumol Thomas

DR. SINJUMOL THOMAS
Assistant Professor & Research Guide
Department of Botany
Carmel College Mala
Thrissur - 680732, India

Examiners:

1.

2/8/23

2.

02/08/23

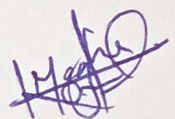
Head of the Department

Dr. Bindhu K. B

Dr. BINDHU K. B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

DECLARATION

I hereby declare that the dissertation entitled “**Chemical composition, Phytotoxicity, Anthelmintic and Larvicidal activities of *Morinda citrifolia* L. (Rubiaceae)**” submitted to the University of Calicut for the award of the degree of Master of Science in Botany is a work of original and independent research done by myself under the supervision and guidance of **Dr. Sinjumol Thomas**, Assistant Professor, Post Graduate and Research Department of Botany, Carmel College (Autonomous), Mala and any part of this dissertation has not been submitted previously for the award of a degree, diploma, association, fellowship or other similar titles to any candidate from any University or Institution. All the sources of help received during the work have been acknowledged here.



Megha V

Place: Mala

IInd M.Sc. Botany

Carmel College, Mala

Date: 27/07/2023

**“PHYTOCHEMICAL ANALYSIS AND IN VITRO CYTOTOXICITY ANALYSIS OF
SEAWEEDS *Caulerpa racemosa* (Forsskål) J. Agardh AND *Caulerpa taxifolia* (M.Vahl)
C.Agardh”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

Submitted by

NIMISHA.N

Reg No: CRAVMBT011

Under the supervision of

DR. BINDHU K.B



**POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE, (AUTONOMOUS) MALA**

THRISSUR

March -2023

POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS), MALA
(Affiliated to the University of Calicut)



CERTIFICATE

This is to certify that the dissertation entitled “ **Phytochemical analysis and in vitro cytotoxicity analysis of seaweeds *Caulerpa racemosa* (Forsskål) J. Agardh and *Caulerpa taxifolia* (M.Vahl) C.Agardh**” is an authentic record of bonafide project work successfully completed by **NIMISHA N**, Reg No. **CRAVMBT011**, Carmel college (Autonomous) , Mala, under the guidance of **DR. BINDHU K. B**, Associate professor and HOD in Postgraduate and Research Department of Botany, Carmel college , Mala for the partial fulfilment of the award in Degree of Master of Science in Botany and no part of this work has been presented before for the award of any degree in any university.

Guide

Dr. Bindhu K.B

Head of the department

Dr. Bindhu K.B

Examiners:

1.
02/08/23
2.
2/8/23.

Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

DECLARATION

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Name: Nimisha N

Place: Mala

Date: 31.01.2023

**“Comparative Analysis of Phytoconstituents and Antibacterial
Activity of *Curcuma longa* Linn. and *Curcuma amada* Roxb.
Rhizomes”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

PRIYA VARGHESE

Reg No: CRAVMBT012

Under the guidance of

Dr. Sr. Kochuthressia K.P



PG and Research Department of Botany

Carmel College (Autonomous) Mala

2022 – 2023

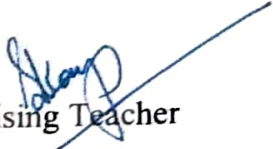
**PG AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS) MALA**

680732



CERTIFICATE

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Supervising Teacher
Dr. Sr. Kochuthressia K.P

Head of Department

Dr. Bindhu K.B

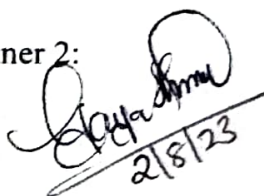


Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

Examiner 1:


02/08/23

Examiner 2:


2/8/23

DECLARATION

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Priya Varghese

Place: Mala

Date: 29-07-2023

**“Probiotic effect of Rhizobacteria for Sustainable Agriculture and
Phytochemical analysis of leaf extract from *Cinnamomum
verum*, J. Presl”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

In partial fulfilment for the award of the degree of

MASTER OF SCIENCE IN BOTANY

Submitted by

SANGEETHA JAIK

Reg No: CRAVMBT013

Under the guidance of

Dr. Roby T. J



PG and Research Department of Botany

Carmel College (Autonomous) Mala

2022 – 2023

PG AND RESEARCH DEPARTMENT OF BOTANY

CARMEL COLLEGE (AUTONOMOUS) MALA

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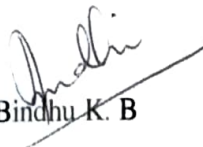


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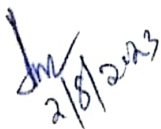


Dr. Roby T. J

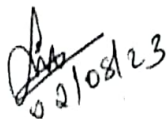


Dr. Bindhu K. B

Examiner 1:



Examiner 2:



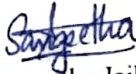
Dr. BINDHU K.B.
Associate Professor & Research Guide (HOD)
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Carmel College (Autonomous)
Mala, Thrissur-680 732

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Place: Mala

Date: 27/07/23


Sangeetha Jaik

**ANALYSIS OF PHYTOCHEMICAL COMPOUNDS, IN VITRO
CYTOTOXICITY AND IDENTIFICATION OF ENDOPHYTIC
FUNGUS FROM *Blumea oxyodonta* DC. LEAVES**

**This dissertation is submitted to the
UNIVERSITY OF CALICUT**

Submitted by

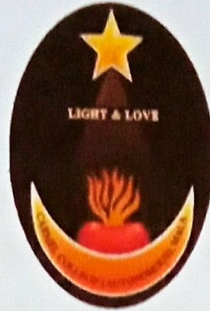
**VAVYA M. S
CRAVMBT014**

**Under the guidance of
Dr. BINDHU K. B**



**POST GRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA
MARCH -2023**

**POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS), MALA
(Affiliated to the University of Calicut)**

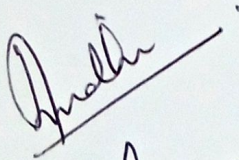


CERTIFICATE

This is to certify that the dissertation entitled “Analysis of Phytochemical compounds ,
Invitro Cytotoxicity and Identification of Endophytic Fungus from *Blumea oxyodonta*
DC. Leaves ” is an authentic record of bonafide project work successfully completed by
VAVYA M. S, Reg No. CRAVMBT014, Carmel College (Autonomous) , Mala, under the
guidance of Dr. BINDHU K. B, Associate professor and Head , Post Graduate and
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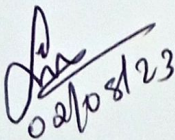

Dr. Bindhu. K. B

Guide

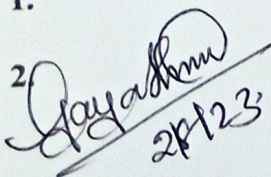


Examiners

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02/08/23

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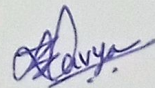

28/12/23

Dr. BINDHU K.B. (HOD)
Associate Professor & Research Guide
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Carmel College (Autonomous)
Mala, Thrissur-680 732

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Place : Mala
Date : 31/07/2023



VAVYA M.S

**“INSECTICIDAL ACTIVITY AND ISOLATION OF *Bacillus flexus* FROM
Piper nigrum L. AND IT'S BIOACTIVE CHARACTERIZATION.”**

This dissertation is submitted to the

UNIVERSITY OF CALICUT

Submitted by

VISMAYA V.S

CRAVMBT015

Under the guidance of

DR.GEO JOSEPH



POSTGRADUATE AND RESEARCH DEPARTAMENT OF BOTANY

CARMEL COLLEGE(AUTONOMOUS), MALA, THRISSUR

MARCH -2023

POSTGRADUATE AND RESEARCH DEPARTMENT OF BOTANY
CARMEL COLLEGE (AUTONOMOUS), MALA



CERTIFICATE

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21/07/23

Dr. Geo Joseph


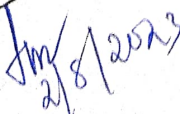
Guide

Dr. Bindu K B



Head of the department

Examiners

1. 
21/8/23
2. 
21/8/23

Dr. BINDHU K.B.
Associate Professor & Research Guide
PG & Research Department of Botany
Carmel College (Autonomous)
Mala, Thrissur-680 732

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Name: Vismaya V S

Place: Mala

Date: 31/7/2023