CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

Si: No:	Name Of Student	Register Number	Year of Admission	Title Of Thesis	Guide	Type Of Work	Place Of Work
1.	AISWARYA R K	BBM051801	2019	Staphylococcus aureus secretome induces Collagen gene expression in Mouse Connective tissue fibroblasts	DR.RAJENDRA PILANKATTA	PROJECT	CENTRAL UNIVERSITY OF KERALA
2.	Anakha J	BBM051802	2019	TARGET VALIDATION OFMICRORNAs 33aAND 377 USING miRNA SPONGEMETHOD	Dr. V B Sameer Kumar	PROJECT	CENTRAL UNIVERSITY OF KERALA
3.	ANUPRIYA K	BBM051804	2019	Partial purification and characterization of protease inhibitor from seed extract of Caesalpinia sappan	Dr. Govinda Rao Duddukuri	PROJECT	CENTRAL UNIVERSITY OF KERALA
4.	ASWATHI C	BBM051806	2019	In-vitro screening of trypsin and chymotrypsin inhibitory activities of selected medicinal plants from Kannur and Kasaragod	Prof. (Dr). Govinda Rao Duddukuri	PROJECT	CENTRAL UNIVERSITY OF KERALA
5.	DARSANA C V	BBM051807	2019	OVER EXPRESSION AND KNOCKDOWN STUDIES OF YBXl-lncRNA SBF2-AS1 INTERACTOME AND ITS CORRELATION WITH AKT/MTOR/PTEN SIGNALING PATHWAYS IN MDA-MB-468 BREASTCANCERCELLS	Dr.Thejaswini Venkatesh	PROJECT	CENTRAL UNIVERSITY OF KERALA

CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

6.	D. LAVANYA	BBM051808	2019	"GREEN SYNTHESIS OF NANOPARTICLES FROMMARINE SPECIES"	Dr. LINGA BANOTH	PROJECT	CENTRAL U NIVERSITY OF KERALA
7.	FARSANA MOHAMMED	BBM051809	2019	"Profiling of plasma tRF-miRs (tRF-3001amiR-1260a & tRF-1003-miR4521)in breast cancer patients from Indian population	Dr.Thejaswini Venkatesh	PROJECT	CENTRAL UNIVERSITY OF KERALA
8.	MAHIMA BHAT	BBM051811	2019	Identification of SIRT1 splice variants in SIRT1 dependent miR106a regulation of MMP9	Dr. V.B. SAMEERKUMAR	PROJECT	CENTRAL U NIVERSITY OF KERALA
9.	MUNEERA M.P	BBM051812	2019	ANALYSING THE ROLE OF miR-7-5p AND miR-455-3p IN ANTICANCER DRUG RESISTANCE AGAINST 5-FLUOROURACIL	Dr. V.B. SAMEER KUMAR	PROJECT	CENTRAL UNIVERSITY OF KERALA
10.	Mr. P Srikanth	BBM051815	2019	GENETICS AND EPIGENETICS OF P-BODY COMPONENTS: EXPRESSION ANALYSIS of MLN51 &RNASET2 IN BREAST CANCER CELLS AFTER 5-AZACYTIDINE TREATMENT	Dr.Thejaswini Venkatesh	PROJECT	CENTRAL U NIVERSITY OF KERALA
11.	PRASAD P	BBM051816	2019	In silico analysis of COQ9 disease-causing SNPs and its effects on protein stability	Dr.Thejaswini Venkatesh	PROJECT	CENTRAL UNIVERSITY OF KERALA
12.	Mr. Rahul M Chirackal	BBM051817	2019	An In-silico Approach Towards Drug Discovery Against SARS CoV2	Dr. Rajendra Pilankatta	PROJECT	CENTRAL UNIVERSITY OF KERALA

CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

13.	Roopika Chandran	BBM0518018	2019	In silico prediction of pathogenicity of Copper chaperon Atox 1 using SNP	Dr. Rajendra Pilankatta	PROJECT	CENTRAL UNIVERSITY OF KERALA
14.	Saranga M.V	BBM051820	2019	ROLE OFmiR-106a, 106b, 377 IN REGULATION OF MYELINATION ASSOCIATED GENES	Dr.V.B SameerKumar	PROJECT	CENTRAL U NIVERSITY OF KERALA
15.	SHANKARI A.B	BBM051821	2019	TOXICITY OF PLASTIC LEACHATE ON MICROALGAE ISOLATED FROM PALLIKARANAI FRESHWATER MARSH	Dr. Rishiram Ramanan	PROJECT	CENTRAL UNIVERSITY OF KERALA
16.	SOUMYA PRASANNA C H	BBM051823	2019	AN INSILCO APPROACH TOWARDS DRUG DISCOVERY AGAINST SARS CoV2 MAIN PROTEASE USING DENV SERINE PROTEASE INHIBITORS	Dr. Rajendra Pilankatta	PROJECT	CENTRAL U NIVERSITY OF KERALA
17.	V CHAITANYA MURTHY	BBM051826	2019	EXPRESSION OF FATTY ACID SYNTHASE IN SUB GENOMIC DENGUE VIRUS 2 REPLICON CELLS	DR.RAJENDRA PILANKATTA	PROJECT	CENTRAL U NIVERSITY OF KERALA

Cloning of wild and mutant 3'UTR of APOL6

A dissertation submitted to Central University of Kerala in partial fulfillment of the requirements for the degree of Master of science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Adhila Nasreen

(BBM051901)

Under the supervision of
Dr. V.B Sameer Kumar

And co-supervision of
Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316 ,APRIL 2021

Central university of kerala

Department of biochemistry and molecular biology

School of biological sciences

Kasargod, kerala-671316

CERTIFICATE

This is to certify that the dissertation entitled "**CLONING OF WILD AND MUTANT 3' UTR OF APOL6 "** submitted by Ms. Adhila Nasreen, (Reg. No. BBM051901) to the Central University in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university

.....

Dr. V. B. Sameer Kumar

Assistant Professor

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

.....

Dr. Grace Raji R.

Adhoc Faculty

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

DECLARATION

I,**Ms. ADHILA NASREEN (BBM051901)** hereby declare that the Dissertation work Entitled "**Cloning of wild and mutant 3' UTR of apoL6 "** submitted to the **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. VB Sameer kumar,** Assistant professor,and co-guidance of **Dr. Grace Raji R.**, Adhoc faculty, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April 2021

Ms. Adhila Nasreen

BBM051901

GENETICS AND EPIGENETICS OF P-BODY COMPONENTS: EXPRESSION ANALYSIS OF MLN51 & RNASET2 IN BREAST CANCER CELLS AFTER 5-AZACYTIDINE TREATMENT

A Dissertation

Submitted By

ADITHYA R S

(BBM051902)

To The

CETNRAL UNIVERSITY OF KERALA

(Estd under The Central Universities Act 2009)

In partial fulfillment of the requirements for the award of

MASTER OF SCIENCE

(BIOCHEMISTRY AND MOLECULAR BIOLOGY)

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316

2021

DECLARATION

I **ADITHYA R S (BBM051902)** hereby declare that the dissertation work entitled **"GENETICS AND EPIGENETICS OF P-BODY COMPONENTS: EXPRESSION ANALYSIS of MLN51 & RNASET2 IN BREAST CANCER AFTER 5-AZACYTIDINE TREATMENT"** is my original work and has been carried out under the guidance of **Dr.THEJASWINI VENKATESH, CENTRAL UNIVERSITY OF KERALA** in partial fulfillment of the requirements for the award of **Master of Science (Biochemistry and Molecular Biology)**

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of Submission:

Name & Signature of Guide:

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

Dr. Thejaswini Venkatesh

Signature of the Candidate:

(with Name&Reg.No:)

Adithya R S, BBM051902

Adithya R S

BBM051902

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled ***"GENETICS AND EPIGENETICS OF P-BODY COMPONENTS: EXPRESSION ANALYSIS of MLN51 & RNASET2 IN BREAST CANCER CELLS AFTER 5-AZACYTIDINE TREATMENT"*** submitted by ***ADITHYA R S, BBM051902*** to the ***CENTRAL UNIVERSITY OF KERALA*** in partial fulfillment of requirements for the award of ***Master of Science (Biochemistry and Molecular Biology)*** is based on research carried out by him under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted anywhere else for any other degree.

Dr. Thejaswini Venkatesh

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

Dr. Rajendra Pilankatta

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
Periye, Kasaragod - 671316

AN IN-SILICO APPROACH TO EVALUATE VARIOUS DELETERIOUS VARIANTS OF BRCA1 GENE

A Dissertation submitted to the Central University of Kerala in partial fulfillment of the requirements for the degree of Master of Science in

BIOCHEMISTRY

Submitted by,

Ms. ANILAS

Reg. No.: BBM051903

Under the supervision of

Prof. Dr. Govinda Rao Duddukuri

And co-supervision of

Dr. Swathi B

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA, PERIYE, KASARAGOD-671316

MAY, 2021

CENTRAL UNIVERSITY OF KERALA

Department of Biochemistry & Molecular Biology
School of Biological Sciences
Kasaragod, Kerala – 671316
India

CERTIFICATE

This is to certify that the dissertation entitled **AN IN-SILICO APPROACH TO EVALUATE VARIOUS DELETERIOUS VARIANTS OF BRCA1 GENE** submitted by Ms. Anila S, (Reg. No. BBM051903) to the Central University of Kerala in partial fulfillment of the requirements for the award of degree of Master of Science in Biochemistry is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Prof. (Dr.) Govinda Rao Duddukuri

(Guide)

प्रो.डा.गोविन्द राउ दुद्दुकूरि
Prof. (Dr.) Govinda Rao Duddukuri
जैवरसायन एवं आणविक जीवविज्ञान विभाग /
Department of Biochemistry & Molecular Biology
जीव विज्ञान स्कूल / School of Biological Sciences
केरल केंद्रीय विश्वविद्यालय / Central University of Kerala
पेरिया, कासरगोड / Periye, Kasaragod - 671316

.....

Dr. Swathi B

(Co-Guide)

.....

विभागाध्यक्ष / Head
जैवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केंद्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

.....

Head of the Department

Examiner in Charge

Date: 02/06/2021

DECLARATION

I, **Ms. ANILA S (BBM051903)** hereby declare that the dissertation work entitled **AN IN-SILICO APPROACH TO EVALUATE VARIOUS DELETERIOUS VARIANTS OF BRCA1 GENE** submitted to **Central University of Kerala** in partial fulfillment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a Bonafide record of original research work done by me under the supervision and guidance of **Prof. (Dr.) Govinda Rao Duddukuri**, Professor and co-guidance of **Dr. Swathi B**, Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma/Fellowship before.

प्रो.डा.गोविन्द राउ दुद्दुकूरि
Prof.- (Dr.) Govinda Rao Duddukuri
जीवरसायन एंव आणविक जीवविज्ञान विभाग /
Department of Biochemistry & Molecular Biology
जीव विज्ञान स्कुल / School of Biological Sciences
केरल केन्द्रीयविद्यालय / Central University of Kerala
पेरिये / Periye, Kasaragod - 671316

(Name & Signature of the Guide)

Dr. Swathi. B

(Name & Signature of the Co-Guide)

Central University of Kerala

Kasaragod

Date: 08/10/2021

Ms. ANILA S

BBM051903

"Effect of Platinum Based Anticancer Drugs on Copper Importers"

A dissertation submitted to the Central University of Kerala in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

BIOCHEMISTRY

by

Bhagya Raj

BBM051904

Under the supervision of

Dr. Rajendra Pilankatta

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARGODE- 671316, KERALA

MAY-2021

CERTIFICATE

This is to certify that the dissertation entitled **"Effect of Platinum Based Anticancer Drugs on Copper Importers"** submitted by Ms. Bhagya Raj, (Reg No: BBM051904) to the Central University of Kerala in partial fulfillment of the requirements for the award of Master of Science in Biochemistry is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

DECLARATION

I, **Ms. Bhagya Raj (BBM051904)** hereby declare that the dissertation work entitled **"Effect of Platinum Based Anticancer Drugs on Copper Importers"** submitted to **Central University of Kerala** in partial fulfillment of the requirements for the award of degree of Master of Science in Biochemistry is a bonafide record of original research work done by me under the supervision and guidance of **Dr. Rajendra Pilankatta,** Associate Professor, and Co-guidance of **Mr. Prajit J.,** Research scholar, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

May 2021

Bhagya Raj

BBM051904

ANALYSIS OF THE ROLE OF miR-33a ON THE REGULATION OF LACTATE DEHYDROGENASE A

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Billu. Lakshmi Durga Bhavani.

(BBM051905)

Under the supervision of

Dr. V.B. Sameer Kumar.

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316, April 2021.

CERTIFICATE

This is to certify that the dissertation entitled "**ANALYSIS OF THE ROLE OF miR-33a ON THE REGULATION OF LACTATE DEHYDROGENASE A**" submitted by Ms.Billu Lakshmi Durga Bhavani, (Reg. No. BBM051905) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. V. B. Sameer Kumar

Assistant Professor

Dept. of Biochemistry & Molecular biology biology

School of Biological sciences

Central University of Kerala

.....

Dr. Grace Raji R.

Adhoc Faculty

Dept. of Biochemistry & Molecular

School of Biological sciences

Central University of Kerala

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

DECLARATION

I, **Ms. Billu Lakshmi Durga Bhavani (BBM051905)** hereby declare that the dissertation work entitled "**ANALYSIS OF THE ROLE OF miR-33a ON THE REGULATION OF LACTATE DEHYDROGENASE A**" submitted to Central University of Kerala in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar**, Assistant Professor, and Co-guidance of **Dr. Grace Raji R.,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala — Ms. Billu. Lakshmi Durga Bhavani

May 2021 — BBM051905

SURVIVAL ANALYSIS OF EXOSOMAL GENES IN BREAST CANCER

A dissertation
submitted by
B.Akhila
(BBM051906)
To The

CENTRAL UNIVERSITY OF KERALA
(Established under the central universities Act 2009)

In partial fulfillment 0f the requirement for the award of

MASTERS OF SCIENCE

(BIOCHEMISTRY AND MOLICUALR BIOLOGY)

Central University of Kerala

Periya, Kasargod- 671316

2021

DESSERTAION

I Miss **B.Akhila (BBM051906)** hereby declared that the dissertation work entitled. **"Survival Analysis of exosomal genes in Breast Cancer."** is my original work and has been carried out under the guidance of **Dr. THEJASWINI VENKATESH**, central university of Kerala in partial fulfillment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of Submission:

Signature of the Candidate

Name & Signature of Guide

Dr. Thejaswini Venkatesh

With Name and Reg.No

MISS. B.Akhila

(BBM051906)

DEPARTMENT OF BIOCHEMISTRY AND MOLICULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled "**Survival Analysis of exosomal genes in Breast cancer**" submitted by Miss. B.Akhila BBM051906 to the central university of Kerala in partial fulfillment of requirements for the award of Master of Science (Biochemistry and Molecular Biology) is based on research carried out by him under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted anywhere else for any other degree.

Dr. Rajendra Pilankatta

Head of the Department

Dept. Of Biochemistry & Molecular Biology

School of biological science

Central university of Kerala.

Dr. Thejaswini Venkatesh

Head of the Department

Dept. Of Biochemistry & Molecular Biology

School of biological science

Central university of Kerala.

Identification of miRNAs sequences within tRFs of O. sativa and analysis of their cross-kingdom miRNAs in humans

A Dissertation submitted to the Central University of Kerala in Partial fulfilment of the requirements for the award the degree of

Master of Science

In

Biochemistry and Molecular Biology

By

DARSHAN G

Reg. No. BBM051907

Under supervision of

Dr. THEJASWINI VENKATESH

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316

MAY 2021

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY
CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled **"Identification of miRNAs sequences within tRFs of O. sativa and analysis of their cross-kingdom miRNAs in humans"** submitted by **Mr. Darshan G, BBM0510907** to the **Department of Biochemistry & Molecular Biology, Central University** in partial fulfillment of the requirements for the award of Master of Science (Biochemistry) is based on research carried out by her under my guidance and supervision. It is further certified that the dissertation or any part has not been submitted elsewhere for any other degree.

.....

Dr. Thejaswini Venkatesh
Associate Professor
Dept. of Biochemistry & Molecular biology
School of Biological Sciences
Central University of Kerala

.....

Dr. Rajendra Pilakkatta
Head of the Department
Dept. of Biochemistry & Molecular biology
School of Biological Sciences
Central University of Kerala

विभागाध्यक्ष / Head
Department of Biochemistry & Molecular Biology
School of Biological Sciences
Periye, Kasaragod - 671316

DECLARATION

I, Darshan G (BBM051907) hereby declare that the Dissertation work entitled **"Identification of miRNAs sequences within tRFs of O. sativa and analysis of their cross-kingdom miRNAs in humans"** submitted to the Central University of Kerala is my original work and has been carried out under the guidance of **Dr.Thejaswini Venkatesh**, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry).

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Date of Submission:

Name & signature of guide

Signature of candidate

DARSHAN.G (BBM051907)

(With Name and Reg. No.)

DARSHAN G

Dr. Thejaswini Venkatesh

BBM05190

ANTIOXIDANT RESPONSES FOLLOWING INFECTION WITH *Pythium myriotylum* OF GINGER RHIZOME PRIMED WITH SELECTED ENDOPHYTIC ISOLATES

A DISSERTATION SUBMITTED TO CENTRAL UNIVERSITY OF KERALA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF

MASTER OF SCIENCE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

SUBMITTED BY

Mr DENIL ROCKY

(BBM051908)

UNDER THE SUPERVISION OF

DR. R. ASWATI NAIR

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYA, KASARAGOD-671320

APRIL 2021

CENTRAL UNIVERSITY OF KERALA

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCE

CERTIFICATE

This is to certify that the dissertation entitled "**ANTIOXIDANT RESPONSES FOLLOWING INFECTION WITH *Pythium myriotylum* OF GINGER RHIZOME PRIMED WITH SELECTED ENDOPHYTIC ISOLATES**" submitted by **Mr DENIL ROCKY** (Reg. No. BBM051908). To the **CENTRAL UNIVERSITY OF KERALA** in partial fulfilment of the requirements for the award of **Master of Science** in **Biochemistry and Molecular Biology** is based on research carried out by him under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university.

.....

Dr. R. Aswati Nair
Associate Professor,
Department of Biochemistry and Molecular Biology

.....

Dr. Rajendra Pilankatta
Head of the Department
Dept of Biochemistry and Molecular Biology

विभागाध्यक्ष / Head
Department of Biochemistry & Molecular Biology
School of Biological Sciences
Periye, Kasaragod - 671316

.....

External Examiner

DECLARATION

I **DENIL ROCKY** (BBM051908) hereby declare that the Dissertation work entitled "**ANTIOXIDANT RESPONSES FOLLOWING INFECTION WITH *PYTHIUM MYRIOTYLUM* OF GINGER RHIZOME PRIMED WITH SELECTED ENDOPHYTIC ISOLATES**" submitted to the **CENTRAL UNIVERSITY OF KERALA** in partial fulfilment of the requirements for the award of the degree of **Master of Science in Biochemistry and Molecular Biology** is a bonafide record of original research work done by me under the supervision and guidance of Dr.R. Aswati Nair, Associate professor, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

CENTRAL UNIVERSITY OF KERALA

APRIL, 2021

DENIL ROCKY
Reg No: BBM051908

Comparative effects of CuS, ZnS Nanoparticle conjugates of Cisplatin or Carboplatin on the expression level of ATP7B

A dissertation submitted to the Central University of Kerala in in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

BIOCHEMISTRY

by

FATHIMATH ZAHRA

BBM051909

Under the supervision of

Dr. RAJENDRA PILANKATTA

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

MAY-2021

CERTIFICATE

This is to certify that the dissertation entitled **" Comparative effects of CuS, ZnS nanoparticle conjugates of Cisplatin or Carboplatin on the expression level of ATP7B "** submitted by **Ms. FATHIMATH ZAHRA** , **(Reg. No. BBM051909)** to the Central University in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university.

01/10/2021

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

DECLARATION

I, **FATHIMATH ZAHRA (BBM051909)** hereby declare that the Dissertation work entitled **"Comparative effects of CuS, ZnS Nanoparticle conjugates of Cisplatin or Carboplatin on the expression level of ATP7B"** submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry is a bonafide record of original research work done by me under the supervision and guidance of **Dr. Rajendra Pilankatta,** Associate Professor and Head ,and Co-guidance of **Mr. Prajit J** ,Research Scholar ,Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University Of Kerala

April 2021

Ms. FATHIMATH ZAHRA

BBM051909

Studies on hyphal and zoospore growth of necrotrophic *Pythium myriotylum* by protease inhibitors isolated from *Zingiber zerumbet* rhizome

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by

GOVIND RAJ

(BBM051910)

Under the supervision of

Dr. Aswati R Nair

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY
SCHOOL OF BIOLIGICAL SCIENCE
CENTRAL UNIVERSITY OF KERALA
PERIYE, KASARAGOD-671316
APRIL, 2021

CENTRAL UNIVERSITY OF KERALA

Department of Biochemistry & Molecular Biology
School of Biological Sciences
Kasaragod, Kerala – 671316
India

CERTIFICATE

This is to certify that the dissertation entitled "**Studies on hyphal and zoospore growth of necrotrophic *Pythium myriotylum* by protease inhibitors isolated from *Zingiber zerumbet* rhizome**" submitted by Mr. GOVIND RAJ, (Reg. No. BBM051910) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. Aswati R Nair

(Guide)

.....

Head of the Department

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Examiner in Charge

Date:

DECLARATION

I, **Mr. GOVIND RAJ (BBM051910)** hereby declare that the dissertation work entitled ''**Studies on hyphal and zoospore growth of necrotrophic *Pythium myriotylum* by protease inhibitors isolated from *Zingiber zerumbet* rhizome''** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a Bonafide record of original research work done by me under the supervision and guidance of **Dr. Aswati R Nair,** Associate Professor, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod. I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

(Name & Signature of the Guide)

Central University of Kerala

Date :

Mr. GOVIND RAJ

BBM051910

VALIDATION OF MIR-377 SPONGE

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Grashma Sadan

(BBM051911)

Under the supervision of

Dr. V. B. Sameer Kumar

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316. APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled **"Validation of miR-377 Sponge"** submitted by Ms. Grashma Sadan, (Reg. No. BBM051911) to the Central University in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university

.....

Dr. V. B. Sameer Kumar
Assistant Professor
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

.....

Dr. Grace Raji R.
Adhoc Faculty
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

.....

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

DECLARATION

I, **Ms. Grashma Sadan (BBM051911)** hereby declare that the Dissertation work Entitled **" Validation of miR-377 sponge"** submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar,** Assistant professor, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University Of Kerala

April 2021

Ms. Grashma Sadan

BBM051911

"EFFECT OF PLATINUM BASED ANTI-CANCER DRUGS ON COPPER CHAPERONES"

A dissertation submitted to the Central University of Kerala in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE

In

BIOCHEMISTRY

By

HALEEMATH THASREEFA M A

BBM051912

Under the supervision of

Dr. RAJENDRA PILANKATTA

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

APRIL-2021

CERTIFICATE

This is to certify that the dissertation entitled **"EFFECT OF PLATINUM BASED ANTI-CANCER DRUGS ON COPPER CHAPERONES"** submitted by **Ms. HALEEMATH THASREEFA M A, (Reg. No. BBM051912)** to the Central University in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and molecular biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university

.....

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Dept. of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
Periye, Kasaragod - 671316

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry
School of Biological sciences
Central University of Kerala

DECLARATION

I, **Ms. HALEEMATH THASREEFA M A (BBM051912)** hereby declare that the Dissertation work Entitled **"EFFECT OF PLATINUM BASED ANTI-CANCER DRUGS ON COPPER CHAPERONES"** submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. Rajendra pilankatta ,** Associate Professor and Head, and co-guidance of **Mr.Prajit J** ,Research scholar, Department of Biochemistry and molecular biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala **Ms.HALEEMATH THASREEFA M A**

April 2021 **BBM051912**

SURVIVAL ANALYSIS OF P-BODY GENES IN BREAST CANCER

A Dissertation

Submitted by

HAMNA HUSSAIN PK

(BBM051913)

To the

CENTRAL UNIVERSITY OF KERALA

(Estd under The Central Universities Act 2009)

In partial fulfilment of the requirements for the award of

MASTER OF SCIENCE (BIOCHEMISTRY AND MOLECULAR BIOLOGY)

CENTRAL UNIVERSITY OF KERALA PERIYE,

KASARAGOD-671316

MAY, 2021

DECLARATION

I, **HAMNA HUSSAIN PK (BBM051913)** hereby declare that the Dissertation work Entitled **"Survival Analysis of P-body Genes in Breast Cancer"** submitted to the **Central University of Kerala** is my original work and has been carried out under the guidance of **Dr.Thejaswini Venkatesh, Assistant Professor, Central University of Kerala** in partial fulfilment of the requirements for the award of **Master of Science(Biochemistry and Molecular Biology).**

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Date of submisssion :

Name &Signature of Guide

Dr. Thejaswini Venkatesh

Signature of the Candidate

(With Name and Reg No.)

Hamna Hussain PK

BBM051913

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR

BIOLOGY CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled **"SURVIVAL ANALYSIS OF P-BODY GENES IN BREAST CANCER"** submitted by Mrs.Hamna Hussain PK, BBM051913 to the Central University in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology) is based on her research carried out by her under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted elsewhere for any other degree.

Dr. Thejaswini Venkatesh	Prof. (Dr). Rajendra pilakanta
Assistant Professor	Head of the Department
Dept. of Biochemistry &Molecular biology	Dept. of Biochemistry &Molecular biology
School of Biological Sciences	School of Biological Sciences
.....	.....

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
Periye, Kasaragod - 671316

ANTIOXIDANT PROPERTY OF QSTATIN; 902688-24-; COMPLEX WITH 3DTC

Anticholesterol drug show antioxidant activity with protein; transferase

a dissertation submitted to the Central University of Kerala in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

IN

Biochemistry

Reg.no:BBM051914

Under the supervision of

Prof.Dr.GOVINDA RAO DUDDUKURI

DEPARTMENT OF BIOCHEMISYRY

SCHOOL OF BIOLOGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

MAY, 2021

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Here dock a receptor molecule with a protein. There by we can find the antioxidant property of antibacterial molecular receptor.Autodocking is a molecular modelling stimulation software .It is effective for a protein- ligand docking. Auto Dock 4 is available under the GENERAL PUBLIC LICENSE.Is the one of the most cited docking software application in the research community. Auto dock is a flexible ligand-protein docking program which basically runs as a two steps procedure: the calculation of the map of interactions of the binding site with some general atom types (performed with auto grid) and the posing of the ligand respecting this map of interaction (performed with autodock). The molecular docking approach can be used to investigate interaction between a small molecule and a protein at the atomic level, which allow us to understand the behavior of small molecules in the binding site of target proteins, and biochemical mechanism in b'nThe **low-density lipoprotein** (**LDL**) **receptor** (**LDL-R**) is a mosaic protein of 839 amino acids (after removal of 21-amino acid signal peptide)[1] that mediates the endocytosis of cholesterol-rich LDL. It is a cell-surface receptor that recognizes the Apo protein B100, which is embedded in the outer phospholipid layer of LDL particles. The receptor also recognizes the apoE protein found in chylomicron remnants and VLDL remnants (IDL). In humans, the LDL receptor protein is encoded by the LDLR gene on chromosome 19. It belongs to the low density lipoprotein receptor gene family. It is most significantly expressed in bronchial epithelial cells and adrenal gland and cortex tissue. Protein and ligand molecule. Hence we are trying to generate antioxidant activity of a anti-cholesterol ligand molecule through molecular docking by AutoDock 4.2 software.

REVIEW OF LITRATURE

Here we docking a protein molecule with a ligand. For more study for antibacterial receptor molecules. From this docking explore the possibilities of drugs using the software tool. Dealing with complex qstatin dock with transferase to study the antioxidant activity. Pathogenic Vibrio species cause diseases in diverse marine animals reared in aquaculture. Since their pathogenesis, persistence, and survival in marine environments are regulated by quorum sensing (QS), QS interference has attracted attention as a means to control these bacteria in aquatic settings. A few QS inhibitors of Vibrio species have been reported, but detailed molecular mechanisms are lacking. Here, we identified a novel, potent, and selective *Vibrio* QS inhibitor, named QStatin [1-(5-bromothiophene-2-sulfonyl)-1H-pyrazole], which affects Vibrio harveyi LuxR homologues, the well-conserved master transcriptional regulators for QS in Vibrio species. Crystallographic and biochemical analyses showed that QStatin binds tightly to a putative ligand-binding pocket in SmcR, the LuxR homologue in *V.* vulnificus, and changes the flexibility of the protein, thereby altering its transcription regulatory activity. Transcriptome analysis revealed that QStatin results in SmcR dysfunction, affecting the expression of SmcR regulon required for virulence, motility/chemotaxis, and biofilm dynamics. Notably, QStatin attenuated representative QS-regulated phenotypes in various Vibrio species, including virulence against the brine shrimp. Together, these results provide molecular insights into the mechanism of action of an effective, sustainable QS inhibitor that is less susceptible to resistance than other antimicrobial agents and useful in controlling the virulence of Vibrio species in aquacultures.

Yields of aquaculture, such as penaeid shrimp hatcheries, are greatly affected by vibriosis, a disease caused by pathogenic Vibrio infections. Since bacterial cell-to-cell communication, known as quorum sensing (QS), regulates pathogenesis of Vibrio species in marine environments, QS inhibitors have attracted attention as alternatives to conventional antibiotics in aquatic settings. Here, we used target-based high-throughput screening to identify QStatin, a potent and selective inhibitor of v. harveyi LuxR homologues, which are well-conserved master QS regulators in Vibrio species. Structural and biochemical analyses revealed that QStatin binds tightly to a putative ligand-binding pocket on SmcR, the LuxR homologue in v. vulnificus, and affects expression of QS-regulated genes. Remarkably, QStatin

Here we docking a protein molecule with a ligand. For more study for antibacterial receptor molecules. From this docking explore the possibilities of drugs using the software tool. Dealing with complex qstatin dock with transferase to study the antioxidant activity. Pathogenic Vibrio species cause diseases in diverse marine animals reared in aquaculture. Since their pathogenesis, persistence, and survival in marine environments are regulated by quorum sensing (QS), QS interference has attracted attention as a means to control these bacteria in aquatic settings. A few QS inhibitors of Vibrio species have been reported, but detailed molecular mechanisms are lacking. Here, we identified a novel, potent, and selective *Vibrio* QS inhibitor, named QStatin [1-(5-bromothiophene-2-sulfonyl)-1H-pyrazole], which affects Vibrio harveyi LuxR homologues, the well-conserved master transcriptional regulators for QS in Vibrio species. Crystallographic and biochemical analyses showed that QStatin binds tightly to a putative ligand-binding pocket in SmcR, the LuxR homologue in *V.* vulnificus, and changes the flexibility of the protein, thereby altering its transcription regulatory activity. Transcriptome analysis revealed that QStatin results in SmcR dysfunction, affecting the expression of SmcR regulon required for virulence, motility/chemotaxis, and biofilm dynamics. Notably, QStatin attenuated representative QS-regulated phenotypes in various Vibrio species, including virulence against the brine shrimp. Together, these results provide molecular insights into the mechanism of action of an effective, sustainable QS inhibitor that is less susceptible to resistance than other antimicrobial agents and useful in controlling the virulence of Vibrio species in aquacultures.

Yields of aquaculture, such as penaeid shrimp hatcheries, are greatly affected by vibriosis, a disease caused by pathogenic Vibrio infections. Since bacterial cell-to-cell communication, known as quorum sensing (QS), regulates pathogenesis of Vibrio species in marine environments, QS inhibitors have attracted attention as alternatives to conventional antibiotics in aquatic settings. Here, we used target-based high-throughput screening to identify QStatin, a potent and selective inhibitor of v. harveyi LuxR homologues, which are well-conserved master QS regulators in Vibrio species. Structural and biochemical analyses revealed that QStatin binds tightly to a putative ligand-binding pocket on SmcR, the LuxR homologue in v. vulnificus, and affects expression of QS-regulated genes. Remarkably, QStatin

Microwave Assisted Synthesis of Silver Nanoparticles of Zerumbone from *Zingiber zerumbet*

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of the degree of

Master of Science

in

Biochemistry and Molecular Biology

by

Jesly Elsa Thomas

BBM051915

Under the guidance of

Dr. R. Aswati Nair
Associate Professor

Department of Biochemistry and Molecular Biology
Central University of Kerala

CENTRAL UNIVERSITY OF KERALA

Department of Biochemistry & Molecular Biology
School of Biological Sciences
Kasaragod, Kerala– 671316
India

CERTIFICATE

This is to certify that this dissertation entitled **"Microwave assisted synthesis of silver nanoparticles of zerumbone from *Zingiber zerumbet*"** submitted for the partial fulfilment of the requirements for the award of the degree of **Master of Science** in **Biochemistry** to the Central University of Kerala, Kasaragod is a record of research work carried by the candidate **Ms. Jesly Elsa Thomas** (Reg.No. BBM051915), under my guidance and supervision. This research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

Head of the Department

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Dr. R. Aswati Nair

(Guide)

Dr. R. ASWATI NAIR
Associate Professor
Department of Biochemistry and Molecular Biology
Central University of Kerala
Tejaswini Hills, Periya P.O, Kasaragod-671316, Kerala

Examiner-in-Charge

DECLARATION

I, Jesly Elsa Thomas (BBM051915) hereby declare that the dissertation work entitled **"MICROWAVE ASSISTED SYNTHESIS OF SILVER NANOPARTICLES OF ZERUMBONE FROM *Zingiber zerumbet*"** submitted to Central University of Kerala in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me, under the supervision and guidance of Dr. R. Aswati Nair, Associate Professor, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod. I also hereby declare that this work in part or full has not been done on the basis of any Degree/ Diploma/ Fellowship on similar title of any other university/Institution.

Central University of Kerala, Kasaragod
May 2021

JESLY ELSA THOMAS
Reg.No. BBM051915

Insilico molecular docking computational analysis of Furin inhibition

A Dissertation Submitted by

KAVYASHREE M (BBM051916)

To the

CENTRAL UNIVERSITY OF KERALA

(Estd. under the Central Universities Act 2009)

In partial fulfilment of the requirements for the award of

MASTER OF SCIENCE

In

BIOCHEMISTRY

CENTRAL UNIVERSITY OF KERALA, PERIYE, KASARAGOD – 671316

MAY 2021

DECLARATION

I, **KAVYASHREE.M (BBM051916)** hereby declare that the dissertation work entitled **"Insilico molecular docking computational analysis of Furin inhibition"** submitted to the Central University of Kerala is my original work and has been carried out under the guidance of **Prof. Govinda Rao Duddukuri**, Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala in partial fulfilment of the requirement for the award of Master of Science (Biochemistry).

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/Diploma before.

Date of Submission: 24/9/2021

Signature of Candidate: Kavyashree M

KAVYASHREE.M (BBM051916)

Signature of Guide

Prof. GOVINDA RAO DUDDUKURI

प्रो.डा.गोविन्द राउ दुद्दुकूरि
Prof.- (Dr.) Govinda Rao Duddukuri
जीवरसायन एंव आणविक जीवविज्ञान विभाग /
Department of Biochemistry & Molecular Biology
जीव विज्ञान स्कुल / School of Biological Sciences
केरल केंन्द्रीय विश्वविधालय / Central University of Kerala
पेरिया, कासरगोड / Periye, Kasaragod - 671316

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled "**Insilico molecular docking computational analysis of Furin inhibition**" submitted by **Ms. KAVYASHREE.M, (BBM051916)** to the Central University of Kerala in partial requirement for the award of Master of Science (Biochemistry). The dissertation work is based on research carried out by her under my guidance and supervision. It is further certified that the dissertation or any part has not been submitted elsewhere for any other degree.

Prof. Govinda Rao Duddukuri

Professor

Dept. of Biochemistry & Molecular biology

School of Biological Sciences

Central University of Kerala

प्रो.डा.गोविन्द राउ दुद्दुकूरि
Prof.- (Dr.) Govinda Rao Duddukuri
जीवरसायन एंव आणविक जीवविज्ञान विभाग /
Department of Biochemistry & Molecular Biology
जीव विज्ञान स्कुल / School of Biological Sciences
केरल केंन्द्रीय विश्वविघालय / Central University of Kerala
पेरिया, कासरगोड / Periye, Kasaragod - 671316

24.09.2021

Dr. Rajendra Pilankatta

Head of the Department

Dept. of Biochemistry & Molecular biology

School of Biological Sciences

Central University of Kerala

ANALYSIS OF THE ROLE OF miR-383 IN THE REGULATION OF LDHA

A dissertation submitted to Central University of Kerala in partial fulfillment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Kirthana Mohan

(BBM051917)

Under the supervision of

Dr. V.B. Sameer Kumar

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316

APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "**ANALYSIS OF THE ROLE OF miR-383 IN THE REGULATION OF LDHA**" submitted by Ms. Kirthana Mohan, (Reg. No. BBM051917) to the Central University in partial fulfillment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university

.....

Dr. V. B. Sameer Kumar

Assistant Professor

Dept. of Biochemistry & Molecular biology

School of Biological Sciences

Central University of Kerala

.....

Dr. Grace Raji R

Adhoc Faculty

Dept. of Biochemistry & Molecular Biology

School of Biological Sciences

Central University of Kerala

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

DECLARATION

I, **Ms. Kirthana Mohan (BBM051917)** hereby declare that the Dissertation work Entitled "**ANALYSIS OF THE ROLE OF miR-383 IN THE REGULATION OF LDHA**" submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar,** Assistant professor, and Co-guidance of **Dr. Grace Raji R** ,Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April 2021

Ms. Kirthana Mohan

BBM051917

TGF-β -1 induces ATP7A (Cu-Transport ATPase) transcription in mouse connective tissue fibroblasts: Implications in fibrosis

Dissertation

submitted by

Konda Meghamsh Teja

(BBM051918)

to the

CENTRAL UNIVERSITY OF KERALA

(Established Under the Central Universities Act 2009)

In partial fulfillment of the requirements for the award of

MASTER OF SCIENCE

BIOCHEMISTRY

DEPT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671320

2021

DECLARATION

I, Mr. Konda Meghamsh Teja hereby declare that the dissertation work entitled "**TGF-β-1 induces ATP7A (Cu-Transport ATPase) transcription in mouse connective tissue fibroblasts: Implications in fibrosis**" is my original work and has been carried out under the guidance of Dr. RAJENDRA PILANKATTA, Central University of Kerala in partial fulfillment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology).

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of submission:

Name & Signature of Guide

Dr. Rajendra Pilankatta

DEPARTMENT OF BIOCHEMISTRY

AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

Signature of the Candidate

with name and Reg. no.

Mr. Konda Meghamsh Teja

(BBM051918)

CERTIFICATE

This is to certify that the dissertation entitled "**TGF-β-1 induces ATP7A (Cu-Transport ATPase) transcription in mouse connective tissue fibroblasts: Implications in fibrosis**" submitted by **Mr. Konda Meghamsh Teja**, BBM051918 to the central university of Kerala in partial fulfillment of requirements for the award of **Master of Science (Biochemistry and Molecular Biology**) is based on research carried out by him under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted anywhere else for any other degree.

Dr. Rajendra Pilankatta
Head of the Department

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

ANALYSIS OF THE EFFECT OF SOME CANDIDATE CARBON QUANTUM DOTs - TAMOXIFEN CONJUGATE IN HEPG2 AND WRL68 CELLS

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Lakku Sreenija

(BBM051919)

Under the supervision of

Dr. V. B. Sameer Kumar

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316. APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "**Analysis of the effect of some candidate carbon quantum dots - tamoxifen conjugate in HepG2 and WRL68 cells**" submitted by Ms. Lakku Sreenija, (Reg. No. BBM051919) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. V. B. Sameer Kumar

Assistant Professor

Dept. of Biochemistry & Molecular biology biology

School of Biological sciences

Central University of Kerala

.....

Dr. Grace Raji R.

Adhoc Faculty

Dept. of Biochemistry & Molecular

School of Biological sciences

Central University of Kerala

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
Periye, Kasaragod - 671316

Central University of Kerala

DECLARATION

I, **Ms. Lakku Sreenija (BBM051919)** hereby declare that the dissertation work entitled **"Carbon Quantum Dots – Tamoxifen as a novel conjugates for drug delivery"** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar,** Assistant Professor, and Co-guidance of **Dr. Grace Raji R.,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April 2021

Ms. Lakku Sreenija

BBM051919

BISULFITE TREATMENT OF GENOMIC DNA FROM AZACYTIDINE TREATED MCF7 CELLS AND MSP OPTIMIZATION FOR MLN51 AND RNASET2

A Dissertation

Submitted by

MAHIMA GOWRI I S

(BBM051920)

To the

CENTRAL UNIVERSITY OF KERALA

(Estd under The Central Universities Act 2009)

In partial fulfilment of the requirements for the award of

MASTER OF SCIENCE (BIOCHEMISTRY AND MOLECULAR BIOLOGY)

CENTRAL UNIVERSITY OF KERALA PERIYE,

KASARAGOD-671316

MAY, 2021

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled **"BISULFITE TREATMENT OF GENOMIC DNA FROM AZACYTIDINE TREATED MCF7 CELLS AND MSP OPTIMIZATION FOR MLN51 AND RNASET2"** submitted by Ms.Mahima Gowri I.S, BBM051920 to the Central University in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology) is based on her research carried out by her under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted elsewhere for any other degree.

Dr. Thejaswini Venkatesh
Assistant Professor
~~Associate~~ Professor
Dept. of Biochemistry & Molecular biology
School of Biological Sciences

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

Prof. (Dr). Rajendra Pilankatta
Head of the Department ,
Dept. of Biochemistry & Molecular biology
School of Biological Sciences

DECLARATION

I, MAHIMA GOWRI.I.S (BBM051920) hereby declare that the dissertation work entitled "**BISULFITE TREATMENT OF GENOMIC DNA FROM AZACYTIDINE TREATED MCF7 CELLS AND MSP OPTIMIZATION FOR MLN51 AND RNASET2**" submitted to the Central University of Kerala is my original work and has been carried out under the guidance of Dr.Thejaswini Venkatesh, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science(Biochemistry and Molecular Biology). I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Mahima Gowri. I. S

Date of Submisssion : 01.11.2021

Signature of the Candidate

Name &Signature of Guide

(With Name and Reg No.)

Dr. Thejaswini Venkatesh

BBM051920

Mahima Gowri I S

Thejaswini V

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

IDENTIFICATION OF SELECTIVE AND POTENT FURIN INHIBITORS BY TARGET BASED VIRTUAL SCREENING

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

Biochemistry

By

Moriboyina Krishna Yadav

BBM-05-19-21

Under the supervision of

Prof. Govinda Rao Duddukuri

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

APRIL-2021

DECLARATION

I, Mr. **Moriboyina Krishna Yadav (BBM051921)** hereby declare that the dissertation work entitled "**IDENTIFICATION OF SELECTIVE AND POTENT FURIN INHIBITORS BY TARGET BASED VIRTUAL SCREENING**" is my original work and has been carried out under the guidance of ***Prof. Govinda Rao Duddukuri***, Professor and Dean of Biological sciences, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry).

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of submission:

Name & Signature of Guide

Prof. Govinda Rao Duddukuri

Signature of the Candidate

Moriboyina Krishna Yadav

Reg.no. BBM051921

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled "**IDENTIFICATION OF SELECTIVE AND POTENT FURIN INHIBITORS BY TARGET BASED VIRTUAL SCREENING**" is a bonafide research work done by Mr. Moriboyina Krishna Yadav (BBM051921) under the guidance of Prof. Govinda Rao Duddukuri, Professor at Central University of Kerala.

The same is being submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry).

Prof. Govinda Rao Duddukuri

Dean of Biological Sciences

Dept. of Biochemistry &

Molecular biology

School of Biological sciences

Central University of Kerala

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry &

Molecular biology

School of Biological sciences

Central University of Kerala

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Evaluation of DNA methylation changes in Prednisone treated *Fusarium oxyporum* and cytotoxicity of metabolite extract

A dissertation submitted to the Central University of Kerala in in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

by

Mudumbi HarshaVardhan

BBM051922

Under the supervision of

Dr. R. Aswati Nair

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671320), KERALA.

MAY-2021

DECLARATION

I, Mr. **Mudumbi HarshaVardhan** hereby declare that the dissertation work entitled "**Evaluation of DNA methylation changes in Prednisone treated *Fusarium oxyporum* and cytotoxicity of metabolite extract**" is my original work and has been carried out under the guidance of **Dr. R. Aswati Nair**, Associate Professor, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology).

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of submission:

Signature of the Candidate

With name and Reg.no.

Mudumbi Harsha Vardhan

BBM051922

CERTIFICATE

This is to certify that the dissertation entitled "**Evaluation of DNA methylation changes in Prednisone treated *Fusarium oxyporum* and cytotoxicity of metabolite extract**" is a bonafide research work done by Mr. Mudumbi Harsha Vardhan (BBM051922) under guidance of Dr. R. Aswati Nair, Associate Professor at Central University of Kerala.

The same is being submitted to the Central University of Kerala in Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology).

Name & Signature of Guide

Dr. R. Aswati Nair

Name and Signature of the HOD

Dr. Rajendra Pilankatta

विभागाध्यक्ष / Head
आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Name & Signature of External Examiner

IDENTIFICATION OF SPLICE VARIANTS GENERATED FROM SOCS5 3'UTR DURING 2-DEOXYGLUCOSE INDUCED PARTIAL INHIBITION OF GLYCOLYSIS

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Mufeedha Musthafa

(BBM051923)

Under the supervision of

Dr. V. B. Sameer Kumar

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316. APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "**Identification of splice variants generated from SOCS5 3'UTR during 2-deoxyglucose induced partial inhibition of glycolysis**" submitted by Ms. Mufeedha Musthafa (Reg. No. BBM051923) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....
Dr. V. B. Sameer Kumar
Assistant Professor
Dept.of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

.....
Dr. Grace Raji. R
Adhoc Faculty
Dept.of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

Dr. Rajendra Pilankatta
Head of the department
Dept.of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

DECLARATION

I, **Ms. Mufeedha Musthafa (BBM051923)** hereby declare that the dissertation work entitled **"Identification of splice variants generated from SOCS5 3'UTR during 2-deoxyglucose induced partial inhibition of glycolysis"** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar,** Assistant Professor, and Co-guidance of **Dr. Grace Raji R.,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala
April 2021

Ms.Mufeedha Musthafa
BBM051923

Involvement of ATP7A and ATP7B (P- Type Copper ATPases) in platinum based anticancer drug action: A comparative analysis of Carboplatin and Cisplatin

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

In

BIOCHEMISTRY

By

NISHANA J

BBM051924

Under the supervision of

Dr. RAJENDRA PILANKATTA

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

MAY-2021

Involvement of ATP7A and ATP7B (P- Type Copper ATPases) in platinum based anticancer drug action: A comparative analysis of Carboplatin and Cisplatin

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

In

BIOCHEMISTRY

By

NISHANA J

BBM051924

Under the supervision of

Dr. RAJENDRA PILANKATTA

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

MAY-2021

CERTIFICATE

This is to certify that the dissertation entitled **Involvement of ATP7A and ATP7B (P- Type Copper ATPases) in platinum based anticancer drug action: A comparative analysis of Carboplatin and Cisplatin**submitted by **Ms. Nishana J**, (Reg. No. BBM051924)to the Central University in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university.

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

DECLARATION

I, **Ms. Nishana J (BBM051924)** hereby declare that the Dissertation work Entitled **" Involvement of ATP7A and ATP7B (P- Type Copper ATPases) in platinum based anticancer drug action: A comparative analysis of Carboplatin and Cisplatin"** submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. RAJENDRA PILLANKATTA** ,Associate professor and head Department of Biochemistry and Molecular Biology, and Co-guidance of **Mr. Prajit J.,** Research scholar, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

05/10/2021

Central University of Kerala

May 2021

Ms. Nishana J

BBM051924

EXPRESSION ANALYSIS OF KEY CANCER REGULATORS AFTER TAMOXIFEN TREATMENT IN BREAST CANCER

A Dissertation submitted to the Central University of Kerala in Partial fulfilment of the requirements for the award the degree of

Master of Science

In

Biochemistry and Molecular Biology

By

P.Soujanya (BBM051925)

Under supervision of

Dr. THEJASWINI VENKATESH

SCHOOL OF BIOLOGICAL SCIENCES
CENTRAL UNIVERSITY OF KERALA
PERIYE, KASARAGOD-671316
MAY 2021

DECLARATION

I, P Soujanya (BBM051925) hereby declare that the Dissertation work entitled **"Expression analysis of key cancer regulators after tamoxifen treatment in breast cancer"** submitted to the Central University of Kerala is my original work and has been carried out under the guidance of **Dr.Thejaswini Venkatesh**, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry).

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Date of Submission:

Name & signature of guide

Name & signature of guide Signature of candidate

(With Name and Reg. No.)

P SOUJANYA

BBM051925

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY
CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled **"Expression analysis of key cancer regulators after tamoxifen treatment in breast cancer"**submitted by **Ms. P Soujanya, BBM0510925** to the **Department of Biochemistry & Molecular Biology,Central University** in partial fulfillment of the requirements for the award of Master of Science (Biochemistry) is based on research carried out by her under my guidance and supervision. It is further certified that the dissertation or any part has not been submitted elsewhere for any other degree.

.....
Dr.Thejaswini Venkatesh
Assistant Professor
Dept. of Biochemistry & Molecular biology
School of Biological Sciences
Central University of Kerala

.....
Dr.Rajendra Pilakkatta
Head of the Department
Dept. of Biochemistry &Molecularbiology
School of Biological Sciences
Central University of Kerala

EFFECT OF METFORMIN TREATMENT ON THE GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES

A Dissertation

Submitted by

Mr. Puli Madhu Sudhana Rao

(BBM051926)

To the

CENTRAL UNIVERSITY OF KERALA

(Established Under the central Universities act 2009)

In partial fulfilment of the requirements for the award of

MASTER OF SCIENCE

(BIOCHEMISTRY AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARGOD-671316

2021

DECLARATION

I, Mr. **Puli. Madhu Sudhana Rao (BBM051926)** hereby declare that the dissertation work

Entitled "**EFFECT OF METFORMIN TREATMENT ON THE GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES**" is my original work and has been carried Out under the guidance of **Dr. Thejaswini Venkatesh**, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology.

I also hereby declare that this work in part or full has not been Submitted to any other university/institution for any degree/diploma.

Date of submission:

Signature of the Candidate

With Name and Reg. No

P. MADHU SUDHANA RA0

BBM051926

Name and Signature of guide

Dr. Thejaswini Venkatesh

DR. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation "**EFFECT OF METFORMIN TREATMENT ON THE GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES**"" submitted by Mr. Puli. Madhu Sudhana Rao, (BBM051926) to the **Central University of Kerala** in partial fulfilment of requirements for the award of **Master of Science degree in Biochemistry and Molecular Biology** is based on research carried out by him under my guidance and supervision. It is further certified that this dissertation or any part has not been submitted anywhere else for any other degree.

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasaragod - 671316, Kerala, India

Dr. Thejaswnini Venkatesh
Assistant Professor

Dept. of Biochemistry & Molecular Biology biology

School of Biological Sciences

Central University of Kerala

विभागाध्यक्ष / Head
जीवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
Periye, Kasaragod - 671316

Dr. Rajendra pillankatta
Head of the Department

Dept. of Biochemistry & molecule

School of Biological sciences

Central University of Kerala

GREEN SYNTHESIS OF ZERUMBONE- ZINC OXIDE NANOPARTICLES FROM *ZINGIBER ZERUMBET*: CHARACTERIZATION, ANTIBACTERIAL AND ANTICANCER STUDIES

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by

Sanjay Kumar. R

(BBM051928)

Under the supervision of

Dr. Aswati R Nair

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY
SCHOOL OF BIOLOGICAL SCIENCE
CENTRAL UNIVERSITY OF KERALA
PERIYE, KASARAGOD-671320

CENTRAL UNIVERSITY OF KERALA

Department of Biochemistry & Molecular Biology
School of Biological Sciences
Kasaragod, Kerala – 671316
India

CERTIFICATE

This is to certify that the dissertation entitled'' **Green synthesis of Zerumbone – Zinc Oxide Nanoparticles from *Zingiber zerumbet*: Characterization, Antibacterial and Anticancer Studies''** submitted by Mr.Sanjay Kumar R, (Reg. No. BBM051928) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. Aswati R Nair
(Guide)

Dr. R. ASWATI NAIR
Assistant Professor
Department of Biochemistry and Molecular Biology
Central University of Kerala
Tejaswini Hills, Periya P.O, Kasaragod-671316, Kerala

.....

Head of the Department

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

Examiner in Charge

Date:

DECLARATION

I, **Mr.Sanjay Kumar R (BBM051928)** hereby declare that the dissertation work entitled'' **Green synthesis of Zerumbone – Zinc Oxide Nanoparticles from *Zingiber zerumbet*: Characterization, Antibacterial and Anticancer Studies''** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. Aswati R Nair,** Associate Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod. I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Mr. Sanjay Kumar R

Date:

BBM051928

THE EFFECT OF PLATINUM BASED ANTI-CANCER DRUGS OF COPPER CHAPERONES OF SUPEROXIDE DISMUTASE

A dissertation submitted to the Central University of Kerala in in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

BIOCHEMISTRY

by

SHAIK MANSOOR

BBM051929

Under the supervision of

Dr. Rajendra Pillankatta

DEPARTMENT OF BIOCHEMISTRY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

APRIL-2021

CERTIFICATE

This is to certify that the dissertation entitled **THE EFFECT OF PLATINUM BASED ANTICANCER DRUGS OF COPPER CHAPERONES OF SUPEROXIDE DISMUTASE** submitted by **Mr. SHAIK MANSOOR**, (Reg. No. BBM051929) to the Central University in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other university.

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केंद्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड / Periya, Kasaragod - 671316

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry
School of Biological sciences
Central University of Kerala

DECLARATION

I, **Mr. SHAIK MANSOOR (BBM051929)** hereby declare that the Dissertation work Entitled **" The effect of anticancer drugs of copper chaperones of superoxide dismutase"** submitted to the **Central University of Kerala** in partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry is a bonafide record of original research work done by me under the supervision and guidance of **Dr. RAJENDRA PILLANKATTA ,** Associate professor and head Department of Biochemistry and Molecular Biology, and Co-guidance of **Mr. Prajit J.,** Research scholar, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

Mr. SK. MANSOOR

May 2021

BBM051929

Lipopeptide screening and hydrocarbon degradation activity of selected endophytic bacterial isolates

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

In

BIOCHEMISTRY AND MOLECULAR BIOLOGY

By

SHALIMA MV

Reg. No: BBM051930

Under the supervision of

Dr. R. ASWATI NAIR

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

KASARAGOD, KERALA

MAY 2021

CENTRAL UNIVERSITY OF KERALA

Department of Biochemistry & Molecular Biology

School of Biological Sciences

Kasaragod, Kerala– 671316

India

CERTIFICATE

This is to certify that this dissertation entitled "Lipopeptide screening and hydrocarbon degradation activity of selected endophytic bacterial isolates" submitted for the partial fulfillment of the requirements for the award of the degree of Master of Science in Biochemistry and Molecular Biology to the Central University of Kerala, Kasaragod, Kerala, is a record of research work carried by the candidate Mrs. Shalima MV (BBM051930), under my guidance and supervision. This research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. R. Aswati Nair
Guide
Associate Professor,
Department of Biochemistry and Molecular Biology

.....

Dr. Rajendra Pilankatta
Head of the Department
Dept. of Biochemistry and Molecular Biology

Department / Head
जैवरसायन एवं आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316

.....

External Examiner

DECLARATION

I hereby declare that the work presented in this dissertation entitled "**Lipopeptide screening and hydrocarbon degradation activity of selected endophytic bacterial isolates**" has been carried out by me under the supervision of Dr. R. Aswati Nair, Associate Professor, Department of Biochemistry and Molecular Biology, School of Biological Sciences, Central University of Kerala, Kerala, during the period of January, 2021 to February, 2021. To the best of my knowledge, no part of this dissertation has been submitted for the award of any degree or fellowship of this or any other University. I will not reproduce, publish or present any part of this study elsewhere without prior permission.

Kasaragod, Kerala

May 2021

Shalima MV

Reg No.: BBM051930

ANALYSIS OF THE ROLE OF miR-377 ON THE REGULATION OF MMP9

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Submitted by,

Ms. Shilpa C. C.

(BBM051931)

Under the supervision of

Dr. V. B. Sameer Kumar

And co-supervision of

Dr. Grace Raji R.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316. APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "**Analysis of the role of miR-377 on the regulation of MMP9**" submitted by Ms. Shilpa C C, (Reg. No. BBM051931) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and MolecularBiologyis based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Dr. V. B. Sameer Kumar
Assistant Professor
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

.....

Dr. Grace Raji R.
Adhoc Faculty
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

.....

Dr. Rajendra Pilankatta
Head of the department
Dept. of Biochemistry & Molecular biology
School of Biological sciences
Central University of Kerala

DECLARATION

I, **Ms. Shilpa C. C. (BBM051931)** hereby declare that the dissertation work entitled **"Analysis of the role of miR-377 on the regulation of MMP9"** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a bonafide record of original research work done by me under the supervision and guidance of **Dr. V. B. Sameer Kumar,** Assistant Professor, and Co-guidance of **Dr. Grace Raji R.,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April2021

Ms Shilpa C.C.

BBM051931

INSILICO ANALYSIS OF SINGLE NUCLEOTIDE POLYMORPHISMS (SNPs) IN HUMAN AKT1 GENE

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY

Submitted by,

Ms. Shreya V

(BBM051932)

Under the supervision of

Prof. (Dr). Govinda Rao Duddukuri

And co-supervision of

Dr. Swathi B

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316. APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "Insilico analysis of Single Nucleotide Polymorphisms (SNPs) of Human AKT1 gene" submitted by Ms. Shreya V, (Reg. No. BBM051932) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry and Molecular Biology is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Prof. (Dr). Govinda Rao Duddukuri

Dept. of Biochemistry and Molecular biology

School of Biological sciences

Central University of Kerala

.....

Dr. Swathi B

Adhoc Faculty

Dept. of Biochemistry & Molecular Biology

School of Biological sciences

Central University of Kerala

01/10/2021

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

DECLARATION

I, **Ms. Shreya V, (BBM051932)** hereby declare that the dissertation work entitled "Insilico analysis of Single Nucleotide Polymorphisms (SNPs) of Human AKT1 gene" submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry is a bonafide record of original research work done by me under the supervision and guidance of **Prof. (Dr). Govinda Rao Duddukuri, Professor**, and Co-guidance of **Dr. Swathi. B,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April 2021

Ms Shreya V

BBM051932

EFFECT OF CETRIZINE TREATMENT ON THE GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES

A dissertation

Submitted by

TANUSHREE S YARAGOPPA

(BBM051933)

To the

CENTRAL UNIVERSITY OF KERALA

(Estd. under The Central Universities Act 2009)

In partial fulfilment of the requirements for the award of

MASTER OF SCIENCE (BIOCHEMISTRY AND MOLECULAR BIOLOGY)
CENTRAL UNIVERSITY OF KERALA, PERIYE, KASARAGOD - 671316

MAY 2021

DECLARATION

I, TANUSHREE S YARAGOPPA (BBM051933) hereby declare that the dissertation work entitled **"EFFECT OF CETIRIZINE TREATMENT ON GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES"** submitted to the Central University of Kerala is my original work and has been carried out under the guidance of Dr. Thejaswini Venkatesh, Assistant Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology).

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/Diploma before.

Date of Submission: 24/9/21

Name & signature of guide

Thejaswini V

Dr. Thejaswini Venkatesh

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasargod - 671316, Kerala, India

Tyaragoppa

Signature of candidate

TANUSHREE S YARAGOPPA
BBM051933

DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY

CENTRAL UNIVERSITY OF KERALA

CERTIFICATE

This is to certify that the dissertation entitled "**EFFECT OF CETIRIZINE TREATMENT ON GROWTH OF BACTERIA PRESENT IN PROBIOTICS AND CURD SAMPLES**" submitted by Ms. TANUSHREE S YARAGOPPA, BBM051933 to the Central University in partial fulfilment of the requirements for the award of Master of Science (Biochemistry and Molecular Biology) is based on research carried out by her under my guidance and supervision. It is further certified that the dissertation or any part has not been submitted elsewhere for any other degree.

Dr. THEJASWINI VENKATESH Ph.D
Assistant Professor
Dept of Biochemistry and Molecular Biology
Central University of Kerala
Kasaragod - 671316, Kerala, India

Dr. Thejaswini Venkatesh
Associate Professor
Dept. of Biochemistry & Molecular biology
School of Biological Sciences
Central University of Kerala

Prof. (Dr). Rajendra Pilankatta
Head of the Department
Dept. of Biochemistry & Molecular biology
School of Biological Sciences
Central University of Kerala

INSILICO ANALYSIS OF CODING AND NON-CODING SNPs OF HUMAN VEGF GENE

A Dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for the degree of Master of Science in

BIOCHEMISTRY

Submitted by,

Ms. Vaishnavi R

(BBM051934)

Under the supervision of

Prof. (Dr.) Govinda Rao Duddukuri

And co-supervision of

Dr. Swathi B

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLIGICAL SCIENCE

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD-671316.

APRIL, 2021

CERTIFICATE

This is to certify that the dissertation entitled "**Insilco Analysis of coding and non-coding SNPs of human VEGF gene**" submitted by Ms. Vaishnavi R. (Reg. No. BBM051934) to the Central University of Kerala in partial fulfilment of the requirements for the award of Master of Science in Biochemistry is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

.....

Prof. (Dr). Govinda Rao Duddukuri

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

.....

Dr. Swathi B

Adhoc Faculty

Dept.of Biochemistry &

Molecular Biology

Central University of Kerala

.....

Dr. Rajendra Pilankatta

Head of the department

Dept. of Biochemistry & Molecular biology

School of Biological sciences

Central University of Kerala

DECLARATION

I, **Ms. Vaishnavi R (BBM051934)** hereby declare that the dissertation work entitled **"Insilco Analysis of coding and non-coding SNPs of human VEGF gene"** submitted to **Central University of Kerala** in partial fulfilment of the requirements for the award of degree of Master of Science in Biochemistry is a bonafide record of original research work done by me under the supervision and guidance of **Prof. (Dr). Govinda Rao Duddukuri,** and Co-guidance of **Dr. Swathi B,** Adhoc Faculty, Department of Biochemistry and Molecular Biology, Central University Of Kerala, Kasaragod.

I also hereby declare that this work in part or full has not been submitted to any other University/Institution for the award of any Degree/ Diploma before.

Central University of Kerala

April 2021

Ms. Vaishnavi R

BBM051934

DENGUE VIRAL GENOME REPLICATION UPREGULATES THE EXPRESSION OF P-Type Cu Transport ATPase

A dissertation submitted to the Central University of Kerala in in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE

In

BIOCHEMISTRY

By

VINUTHA HANDE.B

Reg No: BBM051935

Under the supervision of

Dr. Rajendra Pilankatta

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

APRIL-2021

DECLARATION

I, **Ms. Vinutha Hande. B** hereby declare that the dissertation work **"DENGUE VIRAL GENOME REPLICATION UPREGULATES THE EXPRESSION OF P-Type Cu Transport ATPase "** is my original work and has been carried out under the guidance of **Dr. RAJENDRA PILANKATTA**, Associate Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala in partial fulfillment of the requirements for the award of Master of Science (Biochemistry).

I also hereby declare that this work in part or full has not been submitted to any other university/institution for any Degree/Diploma.

Date of Submission: 24/09/2021

Vinutha Hande B

Signature of the Candidate

Vinutha Hande B

Reg No: BBM051935

Signature of Guide

Dr. Rajendra Pilankatta

Associate Professor and

Head of Department

Department of Biochemistry and Molecular Biology

Central University of Kerala

CERTIFICATE

This is to certify that the dissertation entitled, **"DENGUE VIRAL GENOME REPLICATION UPREGULATES THE EXPRESSION OF P-Type Cu Transport ATPase "** submitted by **Ms. Vinutha Hande B, (Reg. No. BBM051935)** to the Central University of Kerala in partial fulfillment of the requirements for the award of **Master of Science in Biochemistry** is based on research carried out by her under my guidance and supervision. It is further certified that this research work has not been submitted either partially or fully for any other degree or fellowship of this or any other University.

Dr. Rajendra Pilankatta
Head of the Department
Department of Biochemistry & Molecular Biology
School of biological science
Central university of Kerala

ACKNOWLEDGEMENT

I am extremely grateful to express my respect and heartfelt gratitude to my project guide **Dr. Rajendra Pilankatta**, Associate Professor and Head of Department of Biochemistry and Molecular Biology, for giving me an opportunity to do this project work and providing me all the support and guidance.

I would like to present my heartfelt thanks to **Dr. Rajendra Pilankatta**, who in spite of being in charge of Covid testing department in this crucial time, took his time out to interact with me for various discussions and made sure of keeping a daily track of my experiments and also for providing me all the facilities and enthusiastic support, without which I would have never been able to complete my project within the short period of time.

I would also like to thank my project guide **Mr. Prajith Nambiar** for teaching me various lab instrumentations and softwares. He has been there for me, to give full guidance and provide valuable feedback. Additionally, I would like to thank **Mr. Arun Kumar Karayi, Mr. Ranjeet Dung Dung, Ms. Lathika V**, and **Mr. Ratheesh** for their support and guidance whenever required.

I also owe my gratitude to **Dr. Thejaswini Venkatesh, Dr. Govind Rao Duddukuri, Dr. V.B Sameer Kumar** and **Dr. Aswathi Nair**, for their support and cooperation during both the academic sessions and throughout the project work.

I would also like to express my gratitude to my lab mates **Meghamsh Tej** and **Sheik Mansoor** who have willingly helped me out during my research work.

I must mention my heartfelt thanks to my dear friends **Tanushree S Yaragoppa**, **Kavyashree M** and **Krishna Yadav** for their huge moral support persistent encouragement throughout my dissertation work.

Above all I would like to thank my **Family,** who were, are and will always stand behind me with their support and encouragement.

Biological Activities of Extracts from Endophytic Fungi, *Fusarium oxysporum* Isolated from *Zingiber zerumbet (L)*

A dissertation submitted to the Central University of Kerala in partial fulfilment of the requirements for award of the degree of

MASTER OF SCIENCE
IN
BIOCHEMISTRY

BY

ZAKIYA NAFEESATH

BBM051936

UNDER THE SUPERVISION OF

Dr. R. ASWATI NAIR

Associate Professor

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

SCHOOL OF BIOLOGICAL SCIENCES

CENTRAL UNIVERSITY OF KERALA

PERIYE, KASARAGOD (671316), KERALA

APRIL 2021

DECLARATION

I **ZAKIYA NAFEESATH (BBM051936)** hereby declare that the dissertation entitled **"Biological Activities of extracts from Endophytic Fungi, *Fusarium oxysporum* Isolated From *Zingiber zerumbet (L)* "** Submitted to Central University of Kerala in partial fulfillment of the requirements for the award of degree of Master of Science in Biochemistry and Molecular Biology is a record of original research work which I have carried out under the supervision and guidance of Dr. R. Aswati Nair, Associate Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala, Kasaragod. I also hereby declare that this work in part or fully has not been done on the basis of any Degree/Diploma/Fellowship on similar title of any other University/Institution.

Zakiya Nafeesath

Central University of Kerala, Kasaragod

April 2021

CERTIFICATE

This is to certify that dissertation entitled **"Biological Activities of extracts from Endophytic Fungi, *Fusarium oxysporum* Isolated from *Zingiber zerumbet (L)*"** is bonafide research work done by Ms. Zakiya Nafeesath (BBM051936) under the guidance of Dr. R. Aswati Nair, Associate Professor, Department of Biochemistry and Molecular Biology at Central University of Kerala.

The same is being submitted to Central University of Kerala in Kerala in particular fulfilment of the requirements for the award of Master of Science (Biochemistry & Molecular Biology).

Name & Signature of Guide

Dr. R Aswati Nair

Dr. R. ASWATI NAIR
Associate Professor
Department of Biochemistry and Molecular Biology
Central University of Kerala
Tejaswini Hills, Periya P.O, Kasaragod-671316, Kerala

Name & Signature of HOD

Dr. Rajendra Pilankatta

विभागाध्यक्ष / Head
जीवरसायन एंव आणविक जीवविज्ञान विभाग
Department of Biochemistry & Molecular Biology
केरल केन्द्रीय विश्वविद्यालय / Central University of Kerala
School of Biological Sciences
पेरिया, कासरगोड
Periye, Kasaragod - 671316