RGCB
DISCOVERIES FOR A BETTER TOMORROW

Centre for Biotechnology, Thiruvananthapuram 695014, Kerala State, India.
An Autonomous National Institute for Discovery, Innovation & Translation in Biotechnology and Disease Biology, of India, Ministry of Science & Technology, Department of Biotechnology.

राजीव गाँधी जैव प्रौद्योगिकी केन्द्र, तिरुवनन्तपुरम 695 014, के
जैवप्रौद्योगिकी और रोग जीवविज्ञान में आविष्कार, नवीनता एवं
की स्वायत्त राष्ट्रीय संस्थान,
भारत सरकार विज्ञान एवं प्रौद्योगिकी मंत्रालय, जैवप्रौद्योगिकी वि

CERTIFICATE

This is to certify that Ms.Aleena A.R has successfully completed her final year project work as dissertation in partial fulfillment of the award of MASTER OF SCIENCE i BIOTECHNOLOGY from St.Thomas College, Pala, under MG University, Kerala on **"Estroge mediated expression of Ezrin in Follicular Thyroid Cancer"** under my guidance from 1 April 2019 to 30th June 2019 at Rajiv Gandhi Centre for Biotechnology (RGCB Thiruvananthapuram. This work is original and the contents of the dissertation in parts or fu have not been submitted for the award of any other degree, diploma or fellowship in any Indi or foreign university.

Date: 30 June 2019

Place: Thiruvananthapuram

S. SREEJA Ph.D
Scientist
Cancer Research Program
RGCB

Dr. S. Sreeja
Scientist EII
Cancer Research Program
Rajiv Gandhi Centre for Biotechnology
Thiruvananthapuram-695014

राजीव गांधी जैव प्रौद्योगिकी केन्द्र
जैव प्रौद्योगिकी विभाग
DEPT OF BIOTECHNOLOGY
विज्ञान तथा प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE & TECHNOLOGY
भारत सरकार / GOVT OF INDIA
तिरुवनन्तपुरम
THIRUVANANTHAPURAM-
पिन / PIN 695 014
RAJIV GANDHI CENTRE FOR BIOTECHNOLOGY

क्काट पी.ओ., पूजप्पुरा, तिरुवनन्तपुरम - 695 014, केरल, भारत. फोण: 0471-2529400 (30 लाईन्स), 2347975, 2348104, 2348753, 2
फैक्स: 0471-2348096, ई-मेल: director@rgcb.res.in, info@rgcb.res.in, वेब: www.rgcb.res.in
O., Poojappura, Thiruvananthapuram - 695 014, Kerala, India. Phone: 0471-2529400 (30 Lines), 2347975, 2348104, 23
Fax: 0471-2348096, E-mail: director@rgcb.res.in, info@rgcb.res.in, Web: www.rgcb.res.in

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **GENE EXPRESSION PROFILING OF THE IDENTIFIED POSTHARVEST PHYSIOLOGICAL DETERIORATION TOLERANT AND SUSCEPTIBLE GENOTYPES OF CASSAVA (*Manihot esculenta* Crantz)** is an authentic work done by **Ms ANIT ROSE MANICHEN**, under the supervision and guidance of **Dr. VISALAKSHI CHANDRA C**, Scientist Division of Crop improvement ICAR - Central Tuber Crops Research Institute Thiruvananthapuram. for the partial fulfillment of the requirements for the award of degree of **Master of Science in Biotechnology** during the year 2017-2019 I further declare that, this dissertation or any other part of there has not been submitted elsewhere for any other degree.

Prof. JAMES JOSEPH
HEAD, DEPT. OF MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O
PALA 686 574

Head of Department: Prof. JAMES JOSEPH

DEPARTMENT OF MICROBIOLOGY & APPLIED BIOTECHNOLOGY
ST. THOMAS COLLEGE PALAI
P.B. 686 574

Lecture In Charge: Mrs. ARCHANA CHERIAN

External Examiners:

1.....18/7/19.....

2.....

St.THOMAS COLLEGE, PALAI

MAHATMA GANDHI UNIVERSITY, KOTTAYAM, KERALA

DEPARTMENT OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY

Certified that this is a bonafide record of the thesis titled

ROLE OF PAK-1 IN ORAL CANCER PROGRESSION

Done by

Ms. ASWATHY RAMACHANDRAN

Reg No: 170011020285

Submitted for the partial fulfillment for the award of Master of Science in Biotechnology to the Department of Biotechnology

Internal Examiner

Examiner

Head of the Department

HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O.
PALA - 686 574.

External

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **PREPARATION OF DIFFERENT PREBIOTIC YOGHURT AND ITS QUALITY ANALYSIS** is an authentic work done by **Ms ATHIRA S**, under the supervision and guidance of **Prof.(Dr.) KEERTHI T R** Professor, School of Biosciences, Mahatma Ganndhi University, Kottayam. for the partial fulfillment of the requirements for the award of degree of **Master of Science in Biotechnology** during the year 2017-2019.

Head of Department: Prof. JAMES JOSEPH. 17/4/2019

Prof. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY &
APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O
PALA - 686 574.

Lecture In Charge: Mr.Noby Mathew

DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
PIN 686 574
ST THOMAS COLLEGE PALAI

External Examiners:

1...17/4/19.....

2.....

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **" Microbial barrier property of the PVA nanocomposite films incorporated with TiO_2 nanoparticle and clove oil "** is an authentic work done by **MsChinnuChacko**, under the supervision and guidance of **Dr. Radhakrishnan E.K**, Assistant professor School of Biosciences Mahathma Gandhi University, Kottayam for the partial fulfillment of the requirements for the award of degree of **Master of Science in Biotechnology** during the year 2017-2019 I further declare that, this dissertation or any other part of there has not been submitted elsewhere for any other degree.

Prof. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY
APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P.O
PALA - 686 574.

Head of Department: **Prof. James Joseph**

Lecture In Charge: **Ms. Praveena George**

DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
PIN 686 574
ST THOMAS COLLEGE PALAI

External Examiners:

1.....

2.....

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **"Curcumin and chitosan nanoparticle fabricated PVA nanocomposite for microbial barrier application"** is an authentic work done by **Ms Dhanya M. Jacob**, under the supervision and guidance of **Dr. Radhakrishnan E.K**, Assistant professor School of Bioscences Mahathma Gandhi University, Kottayam for the partial fulfillment of the requirements for the award of degree of **Master of Science in Biotechnology** during the year 2017-2019 I further declare that, this dissertation or any other part of there has not been submitted elsewhere for any other degree.

Head of Department: **Prof. James Joseph**

PROF. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O.
PALA - 686 574.

Lecture In Charge: **Mrs. Anupama K.S. Ramkumar**

DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
PIN 686 574
ST THOMAS COLLEGE PALAI

External Examiners:

1...

2.....

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **"Plant probiotic performance of *Pseudomonas* sp. encapsulated in alginate supplemented with salicylic acid and zinc oxide nanoparticle"** is an authentic work done by **Ms Gopika Prathap**, under the supervision and guidance of **Dr. Radhakrishnan E.K**, Assistant Professor School of Biosciences Mahathma Gandhi University, Kottayam for the partial fulfilment of the requirements for the award of degree of **Master of Science in Biotechnology** during the year 2017-2019 I further declare that, this dissertation or any other part of there has not been submitted elsewhere for any other degree.

Head of Department: **Prof. James Joseph**

Prof. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O.
PALA - 686 574

Lecture In Charge: **Mrs. Priya Thomas**

DEPARTMENT OF MICROBIOLOGY & APPLIED BIOTECHNOLOGY
ST. THOMAS COLLEGE PALAI

External Examiners:

1.....

2.....

ST. THOMAS COLLEGE PALAI

Re-accredited with A grade by NAAC

UGC approved college with potential for excellence

CERTIFICATE

This is to certify that the project dissertation entitled **"ISOLATION, CLONING AND SEQUENCING OF 4-COUMARATE COA LIGASE FROM *ZINGIBER OFFICINALE ROSC* "** is a bonafide work carried out by **Ms KAVYA O,** under the guidance of **Dr.EV Soniya,** scientist G, department of plant molecular biotechnology, Ragiv gandhi centre for biotechnology,Thiruvananthapuram, in partial fulfillment for the award of degree of **Master of science in biotechnology** during the academic year **2017-2019**. I further assure that this work has not previously formed the basis of any degree in university.

Lecturer in charge

Ms. Jyothy

14/5/19

Prof.James Joseph

(Head of the Department)

Prof JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O.
PALA - 686 574.

BIOTECHNOLOGY & APPLIED MICROBIOLOGY
Pin 686 574
ST THOMAS COLLEGE PALAI

Examiners

1 .....

2 .....

ST THOMAS COLLEGE PALAI

UGC APPROVED COLLEGE WITH POTENTIAL FOR EXCELLENCE
REACCREDITED BY NAAC A GRADE

CERTIFICATE

Certified that this is a bonafied report of the project work entitled "**Molecular Identification, Partial purification and Enzyme Characterization of Keratinase producing Bacteria**" carried out by **MANU MOHAN** Reg.No **170011020292** in the Department of Biotechnology and Applied Microbiology, St. Thomas College Palai, under the supervision and guidance of **Mr. K.S. Rishad** (**Unibiosys Biotech Research Lab, Cochin**), during the academic year 2017-2019 towards the partial fulfilment of the requirement for the award of Master Degree in Biotechnology under Mahatma Gandhi University and this research work has not formed the basis for the award of any other Degree or Diploma earlier.

Prof. James Joseph
Course Coordinator

Mrs. Simi Jacob
Internal Guide

HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O.
PALA - 686 574

Department of Biotechnology and Applied microbiology

External examiners :

1)

2)

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled **ROLE OF CELL WALL SIGNALLING IN THE INCOMPATIBLE RESPONSE OF *ZINGIBER ZERUMBET* AGAINST *PYTHIUM*** is an authentic work done by Ms. MILI ROSE MICHEL, Reg. No. 170011020293 , under the supervision and guidance of Dr. GEORGE THOMAS, Scientist F, Laboratory of Plant Disease Biology and Biotechnology, Rajiv Gandhi Centre for Biotechnology Thiruvananthapuram for the partial fulfillment of the requirements for the award of degree of Master of Science in Biotechnology during the year 2017-2019. I further declare that, this dissertation or any other part of there has not been submitted elsewhere for any other degree.

Prof. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O
PALA - 686 574

Head of Department: Prof. JAMES JOSEPH

18/07/19

Lecture In Charge: Mrs. PRAVEENA GEORGE

DEPARTMENT OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
Pin 686 574
ST. THOMAS COLLEGE PALAI

External Examiners:

1.....

2.....

ST. THOMAS COLLEGE, PALAI

Re- accredited with A grade by NAAC

UGC approved College with Potential for excellence

CERTIFICATE

This is to certify that the dissertation entitled " **STUDY ON VARIATION AND IDENTIFICATION OF MOLECULAR MARKERS LINKED TO CYANOGEN CONTENT IN CASSAVA (*Manihot esculenta* Crantz)** " is a bonafide record of the record done by **PREEJAMOL M. R.** (170011020294) of **ST. THOMAS COLLEGE**, Pala under the supervision and guidance of **Dr. M. N SHEELA**, Principal Scientist & Head , Division of Crop Improvement, CTCRI, Sreekariyam, Thiruvananthapuram, in partial fulfillment of requirement for the award of Degree of **Master of Science in Biotechnology** during the academic period 2017 – 2019. This is also to certify that the dissertation has not been submitted for the award of any other degree, diploma, fellowship or other similar titles and that the work has not been published in part or full in any scientific or popular journal or magazine

Letcturer in charge

Prof.Praveena George

Head of the Department

Prof. James Joseph

Examiners

1. .....

2. .....

St. Thomas College, Palai

UGC APPROVED College with Potential for Excellence

Reaccredited by NAAC with A Grade (CGPA 3.30)

This is to certify that the dissertation entitled " ***In vitro*** **propagation and identification of molecular markers linked to dwarfness in white yam (*Dioscorea rotundata* Poir.)"**, submitted by **Richu Rachel Yeldos (Reg. No. 170011020295)**, in the partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN BIOTECCHNOLOGY** is a record of work done in the Division of Crop Improvement, Central Tuber Crops Research Institute (ICAR-CTCRI), Sreekariyam, Thiruvananthapuram from 01-04-2019 to 30-06-2019.

Prof. James Joseph

Course Coordinator

Prof. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY &
APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O
PALA - 686 574

Ms. Jyothimol Joy

Internal Guide

Department of Biotechnology and Applied Microbiology

External Examiners

1)

2)

ST THOMAS COLLEGE PALAI

UGC APPROVED COLLEGE WITH POTTENTIAL FOR EXCELLENCE
REACCREDITED BY NAAC A GRADE

CERTIFICATE

Certified that this is a bonafied report of the project work entitled **"ANALYSIS OF INFLAMMATORY CYTOKINES IN BREAST CANCER"** carried out by **SARIKA CHANDRAN** Reg.No **170011020296** in the Department of Biotechnology and Applied Microbiology, St. Thomas College Palai, under the supervision and guidance of **Dr.Priya Srinivas, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram**, during the academic year 2017-2019 towards the partial fulfilment of the requirement for the award of Master Degree in Biotechnology under Mahatma Gandhi University and this research work has not formed the basis for the award of any other Degree or Diploma earlier.

Prof. James Joseph
Course Coordinator

Sri Noby Mathew
Internal Guide

PROF. JAMES JOSEPH
HEAD, DEPT. OF BIOTECHNOLOGY & APPLIED MICROBIOLOGY
ST. THOMAS COLLEGE
Arunapuram P. O
PALA - 686 574.

Department of Biotechnology and Applied microbiology

External examiners :

1)

2)

ST. THOMAS COLLEGE, PALAI

Re-accredited with A grade by NAAC

UGC approved College with Potential for Excellence

July 2019

CERTIFICATE

This is to certify that the dissertation entitled, **EFFECT OF HIGH FAT DIET AND MICRO RNA TREATMENT ON ADIPOGENESIS RELATED GENES IN ANIMAL MODEL**, is an authentic work carried out by **Ms. Sreebharathi.R,** under the supervision and guidance of **Dr.Abdul Jaleel K A,** Scientist F, Division of Diabetes Biology, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, in partial fulfillment for the award of degree of **Master of science in Biotechnology** during the academic year **2017-2019**. I further assure that this work has not been previously formed the basis of any degree in University.

Lecture In Charge

Mrs. Praveena George 5/7/19

Head of the Department

Examiners

1.....

2.....

RGCB
DISCOVERIES FOR A BETTER TOMORROW

Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram 695014, Kerala State, India.
An Autonomous National Institute for Discovery, Innovation & Translation in Biotechnology and Disease Biology,
Government of India, Ministry of Science & Technology, Department of Biotechnology.

राजीव गांधी जैव प्रौद्योगिकी केन्द्र, तिरुवनन्तपुरम 695 014, केरल, भारत.
जैवप्रौद्योगिकी और रोग जीवविज्ञान में आविष्कार, नवीनता एवं अनुवाद
की समर्पित राष्ट्रीय संस्थान,
भारत सरकार विज्ञान एवं प्रौद्योगिकी मंत्रालय, जैवप्रौद्योगिकी विभाग.

CERTIFICATE

This is to certify that Ms. Sreelakshmi Prasad has successfully completed her final year project work as a dissertation in partial fulfillment of the award of MASTER OF SCIENCE in BIOTECHNOLOGY from St.Thomas College, Pala, under MG University, Kerala on **"The proliferative activity of oxysterol 27 hydroxycholesterol is suppressed by pomegranate extract in breast cancer "** under my guidance from 1st April 2019 to 30th June 2019 at Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram. This work is original and the contents of the dissertation in parts or full have not been submitted for the award of any other degree, diploma or fellowship in any Indian or foreign university.

Date: 30 June 2019
Place: Thiruvananthapuram

S. SREEJA Ph.D
Scientist
Cancer Research Program
RGCB

Dr. S. Sreeja
Scientist EII
Cancer Research Program
Rajiv Gandhi Centre for Biotechnology
Thiruvananthapuram-695014

तैक्काट पी.ओ., पूजप्पुरा, तिरुवनन्तपुरम -695 014, केरल, भारत. फोण: 0471-2529400 (30 लाईन्स), 2347975, 2348104, 2348753, 2345899
फैक्स: 0471-2348096, ई-मेल: director@rgcb.res.in, info@rgcb.res.in, वेब: www.rgcb.res.in
Thycaud P.O., Poojappura, Thiruvananthapuram - 695 014, Kerala, India. Phone: 0471-2529400 (30 Lines), 2347975, 2348104, 2348753, 2345899
Fax: 0471-2348096, E-mail: director@rgcb.res.in, info@rgcb.res.in, Web: www.rgcb.res.in

ST.THOMAS COLLEGE PALAI

UGC APPROVED COLLEGE WITH
POTENTIAL FOR EXCELLENCE
REACCREDITED BY NAAC A GRADE

CERTIFICATE

Certified that this is a bonafied report of the project work entitled "Molecular Characterization of nifH gene encoding nitrogen fixation in rhizobial species" carried out by VISAL M. V Reg. No 170011020299 in the Department of Biotechnology and Applied Microbiology, St. Thomas College Palai, under the internal guidance of Mrs. Archana Cherian, during the academic year 2017-2019 towards the partial fulfilment of the requirement for the award of Master Degree in Biotechnology under Mahatma Gandhi University and this research work has not formed the basis for the award of any other Degree or Diploma earlier.

Prof. James Joseph
Course Coordinator
Department of Biotechnology
And Applied Microbiology
St. Thomas College, Palai

Ms. Archana cherian
Asst. Professor
Department of Biotechnology
And Applied Microbiology
St. Thomas College, Palai

EXTERNAL EXAMINE

1.

2.