



# St. Thomas College, Pala

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## CERTIFICATE

Certified that this is a bonafide report of the project work entitled "EVALUATION OF PROBIOTIC PROPERTIES OF *Lactobacillus* SPECIES" Carried out by **Mr. ALBIN JOSEPH, Reg. No:160011011784** in TROPICAL INSTITUTE OF ECOLOGICAL SCIENCE, PAMPADY, KOTTAYAM, under the guidance of **Dr. PUNNEN KURIAN** during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

**Prof. James Joseph**

Course Coordinator

Internal

Ms. Simi Jacob

Dept. of Applied Microbiology & Biotechnology

St. Thomas College, Palai

Examiners:

1. Dr. Sajeesh K. S. N. K.  
  
25/7/18

2. Dr. Lincy Sara Varghese  
  
25/7/18



# St. Thomas College, Pala

UGC APPROVED College with Potential for Excellence

## CERTIFICATE

This is to certify that the thesis entitled "PRODUCTION AND STANDARDIZATION OF CLASSICAL SWINE FEVER VACCINE " done by Miss. Anjana M Reg. No.160011011787 in the department of Applied Microbiology during the period April 2018 to June 2018 of her study in Institute Of Animal Health And Veterinary Biologicals, Palode , under the supervision and guidance of DR.SEEMA S, IAH&VB , Palode during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master's Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course coordinator

Dept. of Applied Microbiology & Biotechnology

Mrs. Simi Jacob

Internal Guide, Lecturer

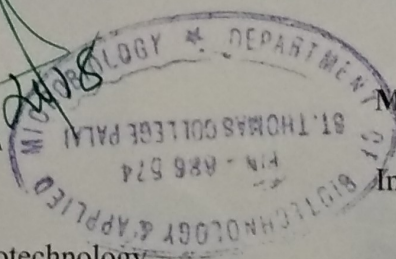
The project report was evaluated by: 1.

Dr. Sajithkumar N.K.

2. Dr. Lucy Sara Varghese

25/7/18

25/7/18





# ST. Thomas College Pala

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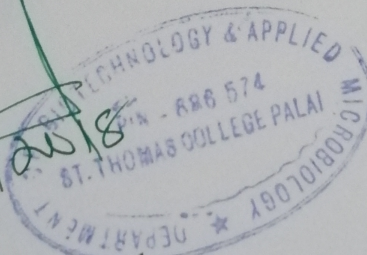
## CERTIFICATE

This is to certify that the thesis entitled "ASSESSMENT OF INFECTIVITY TITER OF FREEZE DRIED R<sub>2</sub>B VACCINE THREE MONTHS BEYOND ITS SCHEDULED SHELF LIFE AND COMPARING IT WITH A BATCH OF FRESHLY PREPARED R<sub>2</sub>B LIQUID VACCINE" done by **Mis. Anjana Sreekumar Reg. No.160011011785** in the department of Applied Microbiology during the period April 2018 to June 2018 of her study in Institute Of Animal Health And Veterinary Biologicals, Palode, under the supervision and guidance of **DR.PREETHA KUMARI C B, IAH&VB, Palode** during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master's Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course coordinator

Dept. of Applied Microbiology & Biotechnology



Mrs. Anupama KS

Internal Guide, Lecturer

The project report was evaluated by:

1. Dr. Sureshkumar. N. K.

2. Dr. Lincy Sara Varghese

25/7/18

25/7/18



**St. Thomas College, Pala**

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**CERTIFICATE**

Certified that this is a bonafide report of the project work entitled "**Melanin pigments isolated from *Exiguobacterium aurantiacum* protects human skin cells against UV induced cytotoxicity**" Carried out by **Miss. Anju Sebastian Reg. No:160011011788**, under the guidance of **Mr. Rajesh Ramachandran, Director, Biogenix Research Center, Thiruvananthapuram** during the academic year 2015-2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

*Prof. James Joseph*

Course Coordinator

*Mrs. Simi Jacob*

Internal guide

Dept. of Applied Microbiology & Biotechnology

ST.Thomas college, Palai

Examiners:

1. *Dr. Saje. b. keema. MSc.*

*[Signature]*  
25/7/18

2. *[Signature]*  
25/7/18

*Dr. Lincy Sara Varghese*



# ST. Thomas College Pala

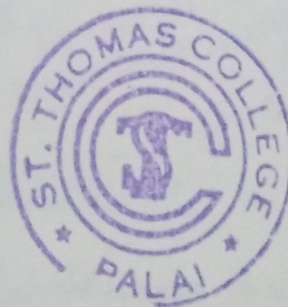
UGC APPROVED College With Potential For Excellence

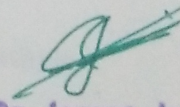
## CERTIFICATE

This is to certify that the thesis entitled “**PRODUCTION OF HEMORRHAGIC SEPTICEMIA OIL ADJUVANT VACCINE USING MONTANIDE AS ADJUVANT**” done by **Miss. ANJUMOL M.P** Reg. No.160011011789 in the department of Applied Microbiology during the period April 2017 to June 2017 of her study in the Bacterial vaccine section, Institute of Animal Health and Veterinary Biologicals Palode, Thiruvananthapuram, under the supervision and guidance of **DR.LEKSHMI.V**, Research Assistant of Bacterial vaccine section, Institute of Animal Health and Veterinary Biologicals Palode, Thiruvananthapuram, during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master’s Degree in Applied Microbiology under Mahatma Gandhi University.

PALAI

ST. THOMAS COLLEGE



  
**Dr. James John**  
**PRINCIPAL**  
**Principal**  
**St. Thomas College, Palai**



**St. Thomas College, Pala**

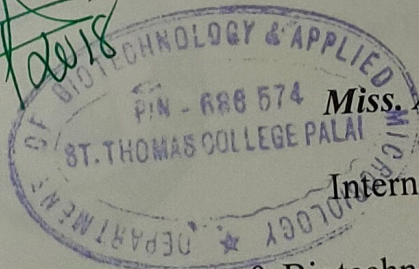
UGC APPROVED College with Potential for Excellence

**CERTIFICATE**

Certified that this is a bonafide report of the project work entitled "A COMPARATIVE STUDY ON MICROBIOLOGICAL ANALYSIS OF HOTEL AND STREET FOODS WITH SPECIAL EMPHASIS ON THE PRESENCE OF MOST PROBABLE BACTERIA CAUSING SPOILAGE" Carried out by Miss. ASHMI ANSON, Reg. No:160011011790 in the Department of Applied microbiology & Biotechnology St. Thomas College, Pala, under the guidance of Dr.B.JACOB, chief executive, Food quality Laboratory and Research Centre, Ernakulum during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

*James Joseph*  
Prof. James Joseph

Course Coordinator



*Archana cheriyan*  
Miss. Archana cheriyan

Internal guide

Dept. of Applied Microbiology & Biotechnology

St. Thomas College, Palai

Examiners 1

*Sajesh Kumar N.C.*  
Dr. Sajesh Kumar N.C.

*S. S. S.*  
26/7/16

*Lucey S.*  
2. Dr. Lucey S.



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## CERTIFICATE

This is to certify that the thesis entitled “Production and characterization of Poly-3-hydroxybutyrate from *Bacillus* sp. MH540124 isolated from an effluent sample” done by Miss.ATHULYA M Reg. No.160011011791 in the department of Applied Microbiology during the period April 2018 to June 2018 of her study in the Microbial Processes and Technology Division, CSIR- National Institute Of Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram, under the supervision and guidance of DR. SINDHU R, Microbial Processes and Technology Division, CSIR- National Institute Of Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master’s Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course Coordinator

Mrs. ANUPAMA. K. S

Internal guide, Lecturer

Dept. of Applied Microbiology & Biotechnology

St. Thomas college, Palai

Examiners:

1. Dr. Sajeshkumar N.K.  
25/7/18

2. Dr. Lincy Sara Varghese  
25/7/18



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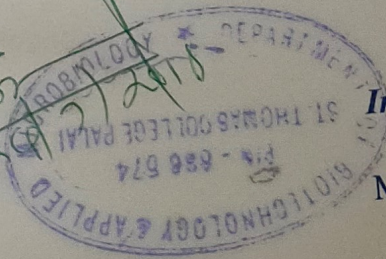
UGC APPROVED College with Potential for Excellence

## CERTIFICATE

Certified that this is a bonafide report of the project work entitled "SCREENING FOR ENZYMATIC PRODUCTION ABILITY AND ANTI MICROBIAL ACTIVITY OF ACTINOMYCETES ISOLATED FROM SOIL" Carried out by **Mr. FEBIN JOSEPH, Reg. No:160011011792** in TROPICAL INSTITUTE OF ECOLOGICAL SCIENCE, PAMPADY, KOTTAYAM, under the guidance of Miss Roshni Susan Elias during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

*Prof. James Joseph*

Course Coordinator



Internal

*Miss. Praveena George*

Dept. of Applied Microbiology & Biotechnology

St. Thomas College, Palai

Examiners:

1. *Dr. Sajesh Kumar, N.K.*

*[Signature]*  
25/7/18

2. *[Signature]*  
25/7/18

*Dr. Divya Sara Varghese*





# St. Thomas College, Pala

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## CERTIFICATE

*Certified that this is a bonafide report of the project work entitled "INVITRO STUDIES ON THE ANTI-CANCER AND APOPTOTIC EFFECTS OF STAPHYLOCOCCUS XYLOSUS PIGMENT ON HUMAN LUNG CANCER CELLS" carried out by Miss. G Devipriya, Reg. No:160011011793 in the Department of Applied microbiology & Biotechnology St. Thomas College, Pala, under the guidance of Dr. RAJESH RAMACHANDRAN during the academic year 2015- 2017 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.*

*Prof. James Joseph*

Course Coordinator

*Mrs. Anupama K S*

Internal Guide

Dept. of Applied Microbiology & Biotechnology

St. Thomas college, Palai

Examiners:

1. Dr. Jayesh Kumar, 25/11/18.

*Jayesh Kumar*  
25/11/18.

2. Dr. Lincy Sara Varghese

*Lincy Sara Varghese*  
25/11/18



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## CERTIFICATE

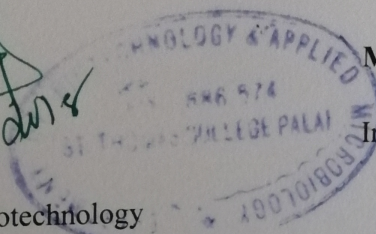
This is to certify that the thesis entitled “**MICROBIAL PRODUCTION OF POLY GAMMA GLUTAMIC ACID AND ITS APPLICATION AS HYDROGEL**” done by **Miss. JEENA JOSEPH Reg. No. 160011011794** in the department of Applied Microbiology during the period April 2017 to June 2017 of her study in the Microbial Processes and Technology Division, CSIR- National Institute Of Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram, under the supervision and guidance of **DR. BINOD PARAMESWARAN**, Microbial Processes and Technology Division, CSIR- National Institute Of Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master's Degree in Applied Microbiology under Mahatma Gandhi University.

**Prof. James Joseph**

Course coordinator

Dept. of Applied Microbiology & Biotechnology

*[Handwritten signature]*  
23/7/2018



**Mrs. Archana Cherian**

Internal Guide, Lecturer

*[Handwritten signature]*

The project report was evaluated by: 1. **Dr. Sajeshkumar N C**

2. **Dr. Lucy Sara Vazhian**

*[Handwritten signature]*  
23/7/18



# St. Thomas College, Pala

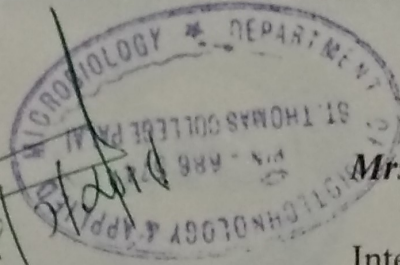
UGC APPROVED College with Potential for Excellence

## CERTIFICATE

Certified that this is a bonafide report of the project work entitled "**MESOPOROUS SILICA NANOPARTICLES ENCAPSULATED WITH CHLORHEXIDINE EXHIBITS BACTERICIDAL AND ANTI QUORUM SENSING ACTIVITY AGAINST CARIOGENIC BIOFILMS**" Carried out by *Miss. Jishamol Thomas* Reg. No:160011011795 in the Department of Applied microbiology & Biotechnology St. Thomas College, Pala, under the guidance of **Mr. Rajesh Ramachandran, Director, Biogenix Research Center, Thiruvananthapuram** during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course Coordinator



Mrs. Archana Cherian

Internal guide

Dept. of Applied Microbiology & Biotechnology

ST.Thomas College, Palai

Examiners: 1

*Dr. Sajish Kumar NCC*

*[Signature]*  
26/7/18

2

*Dr. Lincy Sara Vaz*

*[Signature]*  
26/7/18



# St. Thomas College, Pala

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## CERTIFICATE

Certified that this is a bonafide report of the project work entitled "PRODUCTION OF CHEESE BY MILK CLOTTING ENZYME FROM BACTERIAL ISOLATES OF RHIZOSPHERE ORIGIN" Carried out by Mr. JOSE ABRAHAM, Reg. No: 160011011796 in TROPICAL INSTITUTE OF ECOLOGICAL SCIENCE, PAMPADY, KOTTAYAM, under the guidance of Ms. Roshini Susan Elias during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course Coordinator



Internal

Mrs. Anupama K S

Dept. of Applied Microbiology & Biotechnology

St. Thomas College, Pala

Examiners:

1. Dr. Sajeshkumar N.R.

*Sajeshkumar N.R.*  
26/7/18

*Anupama K S*  
26/7/18  
2. Dr. Lincy Sara Vazhuv



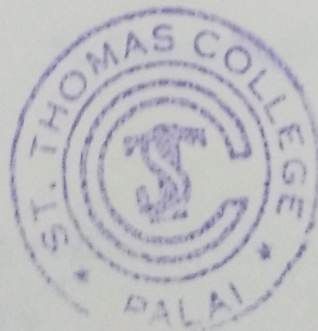
# St. Thomas College, Pala

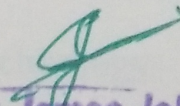
UGC APPROVED College with Potential for Excellence

## CERTIFICATE

*Certified that this is a bonafide report of the project work entitled "SCREENING FOR BACTERIOPHAGES AGAINST PATHOGEN OF AQUACULTURE AND SEAFOOD IMPORTANCE" carried Out by Miss LAXMIPRIYA K W Reg.No:160011011797 in the MFB Division, Central Institute of Fisheries and Technology, under the guidance of Dr. V.MURUGADAS during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.*

18/07/2018



  
**Dr. James John**  
**Principal**  
**St. Thomas College, Pala**

**ST. THOMAS COLLEGE PALAI**



# ST. Thomas College Pala

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## CERTIFICATE

This is to certify that the thesis entitled **"ISOLATION, IDENTIFICATION AND ANTIBIOTIC RESISTANCE OF *ARCOBACTER* ISOLATED FROM SEAFOOD"** done by **Ms. LIJI THOMAS Reg. No.160011011798** in the department of Applied Microbiology during the period April 2018 to June 2018 of her study in Microbiology, Fermentation & Biotechnology Division, ICAR- Central Institute of Fisheries Technology, Cochin(CIFT), under the supervision and guidance of Shri Ranjit Kumar Nadella, Scientist in Microbiology, Fermentation & Biotechnology Division, ICAR-Central Institute Of Fisheries Technology, Cochin during the academic year 2016-2018 towards the partial fulfillment of the requirement for the award of Master's Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

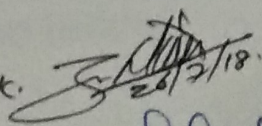
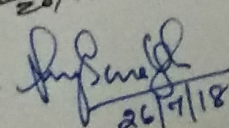
Course coordinator

Dept. of Applied Microbiology & Biotechnology

Mis. Anupama K.S. Ramkumar

Internal Guide, Lecturer

The project report was evaluated by:

1. Dr. Sajeshkumar N.K.  26/7/18.
2. Dr. Lincy Sara Varghese  26/7/18



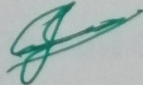
# St. Thomas College, Pala

UGC APPROVED College with Potential for Excellence

## CERTIFICATE

Certified that this is a bonafide report of the project work entitled  
"PREVALENCE OF METHICILLIN-RESISTANT  
STAPHYLOCOCCUS AUREUS IN AQUACULTURE FARMS OF  
THRISSUR DISTRICT" carried Out by *Miss MAREENA BASTIN*  
Reg.No:160011011799 in the MFB Division, Central Institute of Fisheries  
and Technology, under the guidance of *Dr. V MURUGADAS* during the  
academic year 2016- 2018 towards the partial fulfillment of the requirement  
for the award of Masters Degree in Applied Microbiology under Mahatma  
Gandhi University.



  
Dr. JAMES JOHN MANGALATHU

PRINCIPAL

ST. THOMAS COLLEGE PALAI



# St. Thomas College, Pala

UGC APPROVED College with Potential for Excellence

## CERTIFICATE

Certified that this is a bonafide report of the project work entitled "PREVALENCE AND RESISTANCE PATTERN OF *Moraxella catarrhalis* CAUSING RESPIRATORY TRACT INFECTION IN CANCER PATIENTS" carried out by Miss. NOYAR T, Reg. No:160011011800 in the Microbiology division in Malabr Cancer Centre under the guidance of Dr. SAJANI SAMUEL during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph (HOD)

Course Coordinator



Internal

Mrs. Priya Thomas

Dept. of Applied Microbiology & Biotechnology

St. Thomas college, Palai

Examiners:

1. Dr. Sajis Kumar N.C.  
*[Signature]*  
25/7/18

2. Dr. Liniy Sara Varghese  
*[Signature]*  
25/7/18





**St. Thomas College, Pala**  
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**CERTIFICATE**

*Certified that this is a bonafide report of the project work entitled "CONTRIBUTION OF PINK PIGMENTED FACULTATIVE METHYLOTROPHIC BACTERIA IN PLANT GROWTH PROMOTION" Carried out by Mr. REBIN SALIM, Reg. No:160011011801 in TROPICAL INSTITUTE OF ECOLOGICAL SCIENCE, PAMPADY, KOTTAYAM, under the guidance of Ms. ROSHNI SUSAN ELIAS during the academic year 2016- 2018 towards the partial fulfilment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.*

**Prof. James Joseph**

Course Coordinator

**Mrs. Priya Thomas**

Internal

Dept. of Applied Microbiology and Biotechnology

St. Thomas College, Palai

Examiners:

1.....

2.....



# St. Thomas College, Pala

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## CERTIFICATE

Certified that this is a bonafide report of the project work entitled **"ISOLATION AND IDENTIFICATION OF EXTENDED-SPECTRUM BETA-LACTAMASES PRODUCING ESCHERICHIA COLI FROM AQUACULTURE FARMS"** Carried out by Miss. RINU RAPHAEL Reg. No:160011011802 in the Department of Applied Microbiology & Biotechnology, St. Thomas College, Pala, under the guidance of Dr. G.K. Sivaraman, Principal Scientist in Microbiology, Fermentation & Biotechnology Division, ICAR-CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY, COCHIN during the academic year 2016- 2018 towards the partial fulfillment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

HOD & Course Coordinator

Department of Applied Microbiology & Biotechnology



Mrs. Archana Cheriyan

Lecturer, & Internal Guide.

Examiners:

1. Dr. Sajesh Kumar A K  
26/7/18

2. Dr. Lincy Sara Varghese  
26/7/18

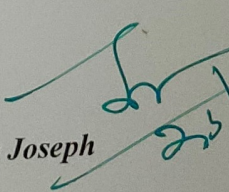


# St. Thomas College, Pala

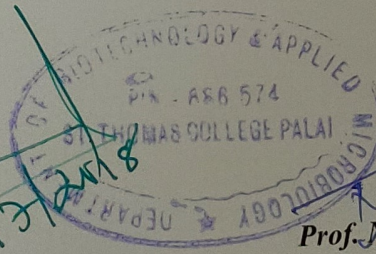
UGC APPROVED College with Potential for Excellence

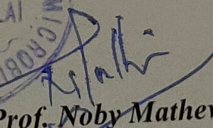
## CERTIFICATE

This is to certify that the thesis entitled **"ISOLATION AND CHARACTERISATION OF BIOFILM PRODUCING BACTERIA FROM PASTEURISED MILK"** done by Miss **Rosemol Johnson, Reg. No.160011011803** in the Department of Dairy Microbiology during the period April 2018 to June 2018 of her study in College of Dairy Science and Technology, Kerala Veterinary and Animal Sciences University, Mannuthy, Thrissur under the supervision and guidance of **Dr. A.K Beena.**, Associate Professor and Head, Department of Dairy Microbiology, College of Dairy Science and Technology, Kerala Veterinary and Animal Sciences University, Mannuthy, Thrissur during the academic year 2016- 2018 towards the partial fulfilment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

  
Prof. James Joseph

Course Coordinator



  
Prof. Noby Mathew

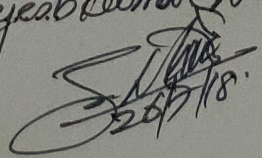
Internal Guide,

Dept. of Applied Microbiology & Biotechnology

St. Thomas college, Palai

Examiners:

1. Dr. Sajeab Kumar N K

  
20/7/18

2. Dr. Lincy Sara Varghese



# St. Thomas College, Pala

UGC APPROVED College with Potential for Excellence

## CERTIFICATE

This is to certify that the thesis entitled “ **COMPARISON OF BIOMASS QUANTIFICATION OF PASTEURELLA MULTOCIDA SEROTYPE A:3 SUSPENSION USING SPECTROPHOTOMETRY, STANDARD PLATE COUNT AND DRY MATTER ESTIMATION AND PREPARATION OF DILUTION TABLE FOR THE DUCK PASTEURELLA OIL ADJUVANT VACCINE PRODUCTION**” done by Miss . Silpa S Nair, Reg. No.160011011804 in the Department of Applied Microbiology during the period April 2018 to June 2018 of her study in Institute Of Animal Health And Veterinary Biologicals, Palode, under the supervision and guidance of **Dr. Sariprabha P.**, Research Officer, IAH&VB, Palode during the academic year 2016- 2018 towards the partial fulfilment of the requirement for the award of Masters Degree in Applied Microbiology under Mahatma Gandhi University.

Prof. James Joseph

Course Coordinator

Miss. Simi Jacob

Internal Guide,

Dept. of Applied Microbiology & Biotechnology

St. Thomas college, Palai

Examiners:

1. Dr. Sajeer Kumar V.K.  
28/7/18

2. Dr. Lincy Sara Varghese  
26/7/18

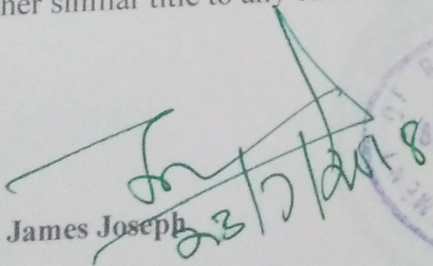


# St. Thomas College, Pala

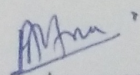
UGC APPROVED College with Potential for Excellence

## CERTIFICATE

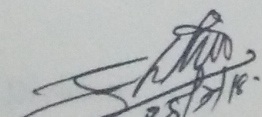
This is to certify that the thesis entitled **“BIOGENIC SILVER NANOPARTICLES SYNTHESIZED USING *Bacillus subtilis* EXHIBITS PLASMID CURING AND WOUND HEALING ACTIVITY *IN VITRO*”** submitted to the MG university, in partial fulfilment of the requirement for the award of the **Degree of Master of science** is a record of bonafide research work done by **Sruthi Jayakrishnan**, during the period from **2016 to 2018** of his study in the Department of **Applied microbiology** at St. Thomas college PALA, place under my supervision and guidance and the thesis has not formed the basis for the award of any Degree / Diploma / Associate ship / Fellowship or other similar title to any candidate of any University so far.

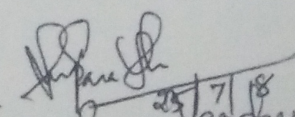
  
Prof. James Joseph  
Head of the Department



  
Mrs. Anupama K.S

### External Examiners

1:   
Dr. Sajesh Kumar N.K.

2:   
Dr. Lincy Sara Varghese



# St. Thomas College, Pala

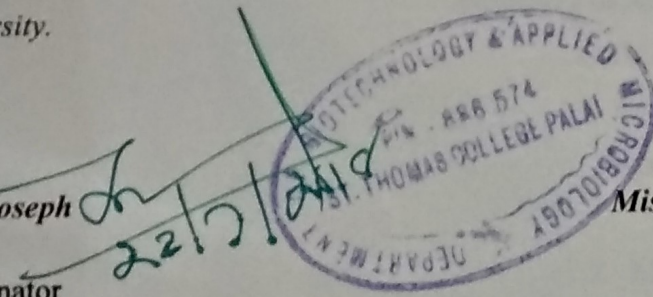
UGC APPROVED College with Potential for Excellence

## CERTIFICATE

This is to certify that the thesis entitled "**CHARACTERISATION OF LACTIC ACID BACTERIA FROM MARKET CURD AND EVALUATION OF ITS FEASIBILITY FOR SHRIKHAND PREPARATION**"  
**Miss. TWINKLE.P.VARGHESE** Reg. No.160011011806 in the Department of Applied Microbiology during the period April 2018 to June 2018 of her study in Institute Of College of Dairy Science and Technology Mannuthy, Thrissur, under the supervision and guidance of **Dr. A.K.Beena.**, Professor and Head Department of Dairy Microbiology, College of Dairy Science and Technology Mannuthy, during the academic year 2016- 2018 towards the partial fulfilment of the requirement for the award of Master's Degree in Applied Microbiology under Mahatma Gandhi University.

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1 *Dr. Sajesh Kumar* 26/7/18  
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26/7/18

2 *Dr. Lucy Sara Varghese*

*[Signature]*  
26/7/18

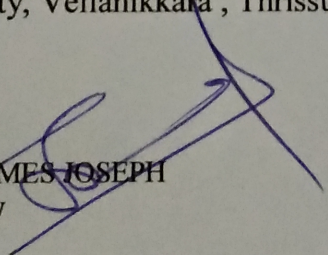


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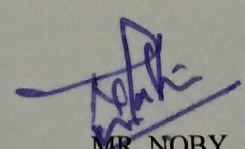
UGC APPROVED COLLEGE WITH POTENTIAL FOR EXCELLENCE

## CERTIFICATE

This is to certify that the dissertation entitled **CHARACTERIZATION AND SCREENING OF AZOSPIRILLUM SP. FOR PLANT GROWTH PROMOTION AND ANTAGONISTIC ACTIVITIES** submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of Degree of Master of Science in Applied Microbiology is a record of original research work carried out by **Ms. VISMAYA MOHAN Reg No : 160011011807**, Department of Applied Microbiology and Biotechnology, St. Thomas College, Pala, Kottayam, during the academic year 2016- 2018. Under the guidance of **Dr. K. SURENDRA GOPAL**, Professor, Department of Agricultural Microbiology, College of Horticulture, Kerala Agricultural University, Vellanikkata , Thrissur.

  
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LECTURE IN

DEPARTMENT OF APPLIED MICROBIOLOGY AND BIOTECHNOLOGY

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Examiners:

1.....

2.....