

**Dr. C. AIYAVU**

Assistant Professor

PG & Research Department of Biochemistry

Thanthai Periyar Government Arts & Science College (Autonomous)

Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled “**MORPHOLOGICAL IDENTIFICATION, GROWTH PROFILE ANALYSIS AND BIOCHEMICAL PARAMETER ESTIMATION ON BLUE GREEN ALGAE**” is a record of project work done by **M. EBENEZER** (Reg. No: 20PBC01) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other university or institution for the award of any degree or diploma.

*M. Ebenezer*  
Candidate Signature

*CPy 20/6/2022*  
Guide Signature

*CPy 26/5/22*  
Signature of Head of the Department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

Examiner

1. *Angunabai*  
2.6.2022

2. *CPy 26/6/22*

Dr.R.SENTHILKUMAR, MSc., M.Phil., Ph.D., PGDCA

Head and Assistant Professor

PG & Research Department of Biochemistry

Thanthai Periyar Govt Arts and Science College (A)

Tiruchirappalli-23



## CERTIFICATE

This is to certify that the dissertation entitled "MOLECULAR DOCKING STUDY OF GALLIC ACID AGAINST GLUCAGON LIKE PEPTIDE-1" is a record of project work done by **POOMADAN.M** (Reg. No: 20PBC02) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at **THANTHAI PERIYAR GOVT. ARTS AND SCIENCE COLLEGE (Autonomous), Tiruchirappalli-23**, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

*Poomadan.M*  
Candidate Signature

*Dr. R. Senthilkumar*  
Guide Signature

**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.  
**EXAMINERS**

*Dr. R. Senthilkumar*  
Signature of Head of the Department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

1. *Angumalai* 2.6.2022  
2. *Dr. R. Senthilkumar* 2/6/22



Research supervisor

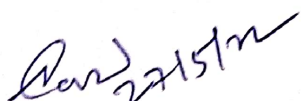
**Dr. R.SENTHIL KUMAR, M.Sc.,M.Phil., Ph.D.,PGDCA.,PDF.,**

**HEAD AND ASSISTANT PROFESSOR, DEPARTMENT OF BIO  
CHEMISTRY,**

**THANTHAI PERIYAR GOVERNMENT ARTS AND SCIENCE  
COLLEGE(A),TIRUCHIRAPPALLI -620 023.**

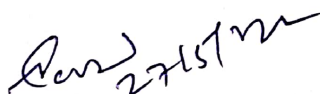
**CERTIFICATE**

This is to certify that the project work entitled "IN VITRO STUDY OF ANTIUROLITHIATIC ACTIVITY IN RHIZOMES OF ZINGIBER OFFICINALE ON STRUVITE CRYSTALS." submitted to the Department of Bio chemistry, **THANTHAI PERIYAR GOVERNMENT ARTS AND SCIENCE COLLEGE(A) TIRUCHIRAPPALLI.** in partial fulfillment of the requirements for the award of **MASTER OF SCIENCE** for the academic year 2020-2022 is a bonafide record of original work done by **A.RAJAESHWARAN** under my guidance. Research supervisor Signature of head of the department.



Research supervisor

**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.

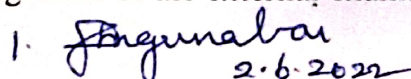
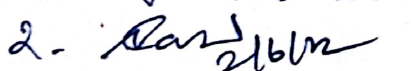


Signature of head of the department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

The viva voce examination held on. 2.6.2022

Signature of the external examiner

1.   
2.6.2022  
2.   
2/6/22



Dr. C. AIYAVU  
Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled "Collection and Identification of *Hindakia tetrachotoma* based on *18srRNA* molecular markers" is a record of project work done by M. Vimalraj (Reg. No: 20PBC04) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

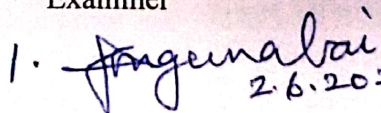
M. Vimalraj  
Candidate Signature

CPJ 26/5/2022  
Guide Signature

  
Signature of Head of the Department

Head Of the Department,  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023,

Examiner

1.   
2.6.2022

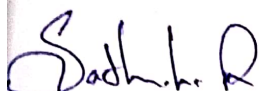
2.   
26/5/2022

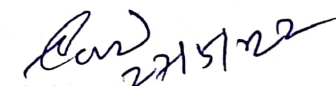
Dr.R.SENTHILKUMAR, MSc., M.Phil., Ph.D., PGDCA  
Head and Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Govt.Arts and Science College (A)  
Tiruchirappalli-23



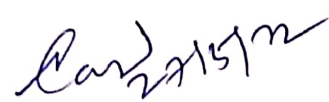
### CERTIFICATE

This is to certify that the dissertation entitled "EFFECT OF POLYHERBAL FORMULATION ON THE EXPRESSION OF GTFB AND BRPA BIOFLIM GENES IN *streptococcus oralis*" is a record of project work done by **SATHISH.R (Reg. No: 20PBC05)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at **THANTHAI PERIYAR GOVT. ARTS AND SCIENCE COLLEGE (Autonomous), Tiruchirappalli-23**, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

  
Candidate Signature

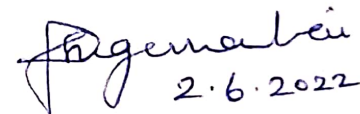

  
Guide Signature

**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.

  
Signature of Head of the Department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

EXAMINERS

1.  2.6.2022  
2. 



**Dr. C. AIYAVU**

Assistant Professor

PG & Research Department of Biochemistry

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Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled "Collection and Identification of *Oscillatoria* sp based on *16srRNA* molecular markers" is a record of project work done by **Anandhajothi. N (Reg. No: 20PBC07)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

*N. Anandhajothi*  
Candidate Signature

*CPJ*  
Guide Signature

*CPJ*  
Signature of Head of the Department  
**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

Examiner  
1. *Angunahai*  
2. *CPJ*

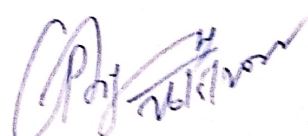
Dr. C. AIYAVU  
Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.




## CERTIFICATE

This is to certify that the dissertation entitled "**Phytochemical analysis, Anti-microbial and Anti-oxidant activity of *Origanum vulgare* (Karpuravalli) polar extracts**" is a record of project work done by **BABY DIVYA. K (Reg. No. 20PBC08)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

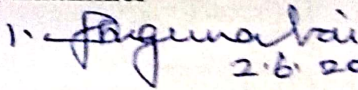
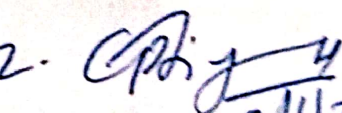
K. Baby Divya  
Candidate Signature

  
Guide Signature

  
Signature of Head of the Department

Head Of the Department,  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

Examiner

1.  2.6.2022  
2.  2/6/2022

**Dr. C. AIYAVU**  
Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled **“Isolation, Biochemical characterization, Antibiotic resistance and screening of amylase production in bacterial isolates from soil Sample from Vayalur area, Tiruchirappalli district”** is a record of project work done by **DEVI. V (Reg. No: 20PBC09)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

*V. Devi*  
**Candidate Signature**

*CPJ 26.5/22*  
**Guide Signature**

*San 27/5/22*  
**Signature of Head of the Department**

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

**Examiner**

1. *Argunabai*  
2.6.2022  
2. *CPJ*  
2.6.22



**Research Supervisor**

**Dr.R.Senthilkumar M.Sc., M.Phil., Ph.D., PGDCA**

**Associate Professor and Head**

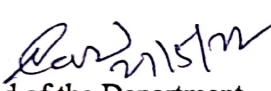
**Department of Biochemistry**

**Thanthai Periyar Government Arts And Science College(A)**

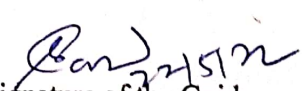
**Tiruchirappalli - 620 023.**

**CERTIFICATE**

This is to certify that the dissertation entitle "ANTI - INFLAMMATORY ACTIVITY OF ETHANOL EXTRACT OF PTEROCARPUS INDICUS FLOWER"Is a bonafide record of work done by D.DHARANI (Reg.No 20PBC10) In. the PG AND RESEARCH DEPARTMNT OF BIOCHEMISTRY THANTHAI PERIYAR GOVERNMENT ARTS AND SCIENCE COLLEGE(Autonomous),Trichy-6200023.In partial fulfillment of the requirements for the award of the degree of MASTEROF SCIENCE IN BIOCHEMISTRY during the academic period 2020-2022 in the Department of Biochemistry under my guidance and supervision and the project work has not previously formed the basis for the award of any degree, diploma associate ship fellowship of any other similar title

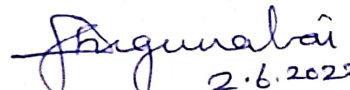
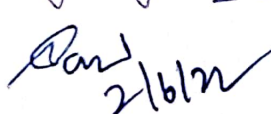
  
Head of the Department

Head Of the Department,  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

  
Signature of the Guide

Dr. R. SENTHILKUMAR,  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt Arts & Science College (A)  
Tiruchirappalli - 620 023.

**EXAMINERS**

1.   
2.6.2022
2.   
2/6/22

**Research Supervisor**

**Dr.R.Senthilkumar M.Sc., M.Phil., Ph.D., PGDCA**

**Associate Professor and Head**

**Department of Biochemistry**

**Thanthai Periyar Government Arts And Science College(A)**

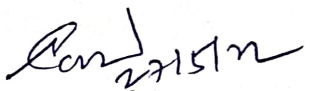
**Tiruchirappalli - 620 023.**

**CERTIFICATE**

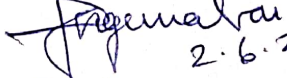
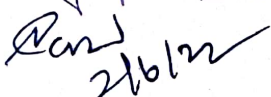
This is to certify that the dissertation entitled "ANTI-CANCER ACTIVITY OF SYNTHESIZED SILVER NANOPARTICLES USING LEAVES OF BREYNIA RETUSA ON BREAST CANCER CELL LINES" is a bonafide record of work done by I.KARPAGAM (Reg.No:18PBC11) in the PG DEPARTMENT of Biochemistry Thanthai Periyar Government Arts And Science College.(Autonomous), Tiruchi-6200023. In partial fulfillment of the requirements for the award of the degree of MASTER OF SCIENCE BIO-CHEMISTRY during the academic period 2020-2022 in the Department of Bio-Chemistry under my guidance and supervision and the project work has not previously formed the basis for the award of any degree, diploma, associate ship of any other similar title..

  
Head of the Department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
**EXAMINERS**  
Tiruchirappalli - 620 023.

  
Signature of the Guide

**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.

1.   
2.6.2022
2.   
2/6/22



Dr.R.SENTHILKUMAR, MSc., M.Phil., Ph.D., PGDCA

Head and Assistant Professor

PG & Research Department of Biochemistry

Thanthai Periyar Govt.Arts and Science College (A)

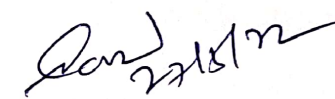
Thiruchirappali-23

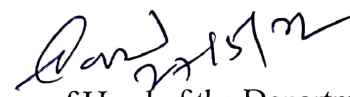


## CERTIFICATE

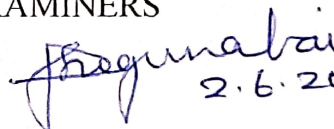
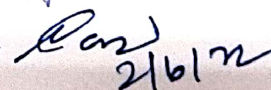
This is to certify that the dissertation entitled "ANTIFOULING EFFECT OF POLYHERBAL FORMULATION AGAINST ULVA LACTUCA" is a record of project work done by **KRISHNAVENI. V (Reg. No: 20PBC12)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at **THANTHAI PERIYAR GOVT. ARTS AND SCIENCE COLLEGE (Autonomous)**, Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

  
Candidate Signature

  
Guide Signature  
**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.

  
Signature of Head of the Department  
**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

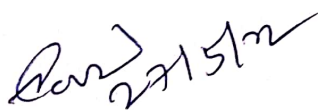
### EXAMINERS

1.  2.6.2022  
2.  2/6/22

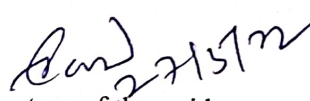
Dr. R. SENTHILKUMAR, M.Sc., M.Phil., Ph.D., PGDCA, PDF.,  
HEAD AND ASSISTANT PROFESSOR, DEPARTMENT OF BIO  
CHEMISTRY,  
THANTHAI PERIYAR GOVERNMENT ARTS AND SCIENCE  
COLLEGE(A),  
TIRUCHIRAPPALLI -620 023.

**CERTIFICATE**

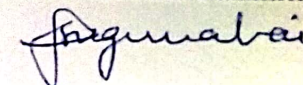
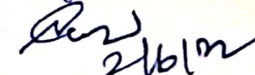
This is to certify that the dissertation entitled "ANTI-AGEING ACTIVITY OF ETHANOL EXTRACT OF *COSTUS IGNEUS* STEM" is a bonafide record of work done by P.PRASANA SRI (20PBC14) in the PG Department of Biochemistry Thanthai Periyar Government Arts and Science College (Autonomous), Trichy-620023. In partial fulfilment of the requirements for the award of the degree of MASTER OF SCIENCE IN BIOCHEMISTRY during the academic period 2020-2022 in the department of biochemistry under my guidance and supervision and the project work has not previously formed the basis for the award of any degree, diploma, associateship, fellowship of any other similar title..

  
Head of the Department  
**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

The viva voce examination held on 2.6.2022

  
Signature of the guide  
**Dr. R. SENTHILKUMAR,**  
Assistant Professor & Head,  
Department of Biochemistry,  
Thanthai Periyar Govt. Arts & Science College (A),  
Tiruchirappalli - 620 023.

Signature of the external examiner

1.   
2.   
2/6/22



**Dr. C. AIYAVU**  
Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled **“Isolation, Biochemical characterization and antibiotic resistance of selected bacterial isolates from Rameswaram marine water”** is a record of project work done by **PRIYANKA . E** (Reg. No: 20PBC15) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other university or institution for the award of any degree or diploma.

*E. Priyanka*  
Candidate Signature

*CPJ*  
Guide Signature

*CPJ*  
Signature of Head of the Department  
Head Of the Department,  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

Examiner

1. *Jagmalrai*  
2.6.2022

2. *CPJ*  
2.6.2022

**Dr. C. AIYAVU**

Assistant Professor

PG & Research Department of Biochemistry

Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled "Biosynthesis of Silver Nanoparticles from *Origanum majorana* (Marikozhundhu) and its Anti-Microbial and Anti-oxidant activity" 'is a record of project work done by **RAJALAKSHMI. G** (Reg. No. 20PBC16) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other university or institution for the award of any degree or diploma.

*G. Rajalakshmi*  
Candidate Signature

*CPij*  
Guide Signature

*Can 22/5/22*  
Signature of Head of the Department

**Head Of the Department,**  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

**Examiner**

1. *Pragunabai*  
2.6.2022  
2. *CPij*  
2.6.2022



**Dr. C. AIYAVU**  
Assistant Professor  
PG & Research Department of Biochemistry  
Thanthai Periyar Government Arts & Science College (Autonomous)  
Tiruchirappalli-23.



## CERTIFICATE

This is to certify that the dissertation entitled "**PHYTOCHEMICAL ANALYSIS, ANTI-MICROBIAL AND ANTI-OXIDANT ACTIVITY OF *Metha X Piperita (pudina) polar extracts***" is a record of project work done by **RANJANI. R** (Reg. No. 20PBC17) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous), Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

*R. Ranjani*  
Candidate Signature

*CPJ 21/05/2022*  
Guide Signature

*Ran 21/5/22*  
Signature of Head of the Department  
Head Of the Department,  
Department of Biochemistry,  
Thanthai Periyar Government Arts and  
Science College (Autonomous),  
Tiruchirappalli - 620 023.

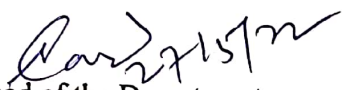
Examiner  
1. *J. J. J. J. J.* 2.6.2022  
2. *CPJ 21/05/2022*

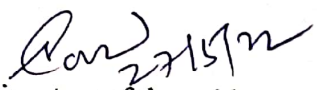
Research supervisor

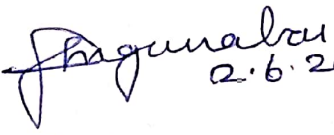
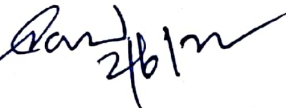
Dr. R. SENTHILKUMAR, M.Sc., M.Phil., Ph.D., PGDCA,  
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**CERTIFICATE**

This is to certify that the dissertation entitled "IN VITRO STUDY OF ANTI DIABETIC ACTIVITY OF ETHANOL EXTRACT OF SPILANTHES ACMELLA STEM" is a bonafide record of work done by A.SELCIYA (Reg.No:18PBC18) in the PG AND RESEARCH DEPARTMENT OF BIOCHEMISTRY Thanthai Periyar Government Arts And Science College.(Autonomous), Tiruchi-6200023. In partial fulfillment of the requirements for the award of the degree of MASTER OF SCIENCE BIO-CHEMISTRY during the academic period 2020-2022 in the Department of Bio-Chemistry under my guidance and supervision and the project work has not previously formed the basis for the award of any degree, diploma, associateship, of any other similar title..

  
Head of the Department  
Head Of the Department,  
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EXAMINERS

  
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## CERTIFICATE

This is to certify that the dissertation entitled "Isolation, Biochemical characterization and screening of amylase production bacterial isolates from Rameswaram Marine Water" is a record of project work done by **SINDHUJA** (Reg. No: 20PBC19) under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at Thanthai Periyar Government Arts & Science College (Autonomous) Tiruchirappalli-23, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

*R. Sindhuja*  
Candidate Signature

*CPoy*  
Guide Signature

*Ram*  
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Examiner

1. *Pragunabai*

2. *CPoy*  
2.6.22

This is to certify that the dissertation entitled “NEMATICIDAL ACTIVITY OF POLYHERBAL FORMULATION AGAINST BANANA ROOT DISEASE” is a record of project work done by **VASUKI.D(Reg. No: 20PBC20)** under my supervision for the award of the Degree of **MASTER OF SCIENCE** in PG & Research Department of Biochemistry at **THANTHAI PERIYAR GOVT. ATRS AND SCIENCE COLLEGE (Autonomous), Tiruchirappalli-23**, the results embodied in this thesis are new and have not been submitted to any other University or Institution for the award of any degree or diploma.

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1. Agunabai  
2.6.2022

2. Don  
2/6/22