



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:14-09-2024

Department	BIOTECHNOLOGY	Application No.	20240031
Area of Research	PHOTOBIO-MODULATION AND PROBIOTICS: A NOVEL APPROACH TO ENHANCING WOUND HEALING AND TISSUE REPAIR	Research Mode	FULL TIME

Name :DINESH G
Date of Birth / Age :18-02-1999 / 25 Years
Gender :MALE
Category :OBC
e-Mail ID :jayamdinesh2@gmail.com
Mobile :7904366781



Father's/Husband's Name	GUNASEKARAN	Father's/Husband's Occupation	FARMER
Family Income	96000	Residential Type	RURAL
Birth Place	ARCOT	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	SINGLE
Aadhaar No.	911822451910	PAN No.	FQSPD2954M
Physically Challenged	NO	Type of Disability	-
Address for Communication: PLOT NO 42 , WARD NO 7 ANNAMALAI NAGAR , TAJPURA ARCOT RANIPET DISTRICT TAMIL NADU INDIA Pin-632521		Permenant Address: PLOT NO 42 , WARD NO 7 ANNAMALAI NAGAR , TAJPURA ARCOT RANIPET DISTRICT TAMIL NADU INDIA Pin-632521	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
BACHELOR OF SCIENCE.	PHYSICS	MANONMANIAM SUNDARANAR UNIVERSITY	2020	53.2	SECOND	CORRESPOND
MASTER OF SCIENCE.	PHYSICS.	BHARATHIDASAN UNIVERSITY	2023	69	FIRST	CORRESPOND

Experience					
Organization	Designation	Experience From	Experience TO	Work Nature	

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
20240031_240914145221	ZHD5HQV013EDTT	14-09-2024	600	SUCCESS

Probiotics in conjunction with photobiomodulation: A Novel Approach to Enhance Tissue Repair and Wound Healing

Name :DINESH G

E-MAIL: jayamdinesh2@gmail.com

Application No:20240031

Summary:

The purpose of this research proposal is to examine the potential benefits of probiotics and photobiomodulation (PBM) for wound healing and tissue restoration. Significant healthcare issues are posed by chronic wounds, which frequently result in complications and higher expenses. Probiotics alter the microbiome and immunological response, while PBM uses low-level light to improve cellular functions. We hypothesise that wound healing can be enhanced and expedited by combining these therapies. To investigate safety and efficacy, the project will include animal models, in vitro testing, and a pilot clinical trial. Positive results could result in novel, potent wound care solutions, improving patient care.

Area of Research & Domain of Research

Area of Research: Wound Healing

Domain of Research: Photobiomodulation and Microbiome Therapy

Objective of the Proposal:

The purpose of this proposal is to look into how probiotics and photobiomodulation (PBM) affect tissue repair and wound healing together. The best probiotic strains and PBM parameters will be assessed in this study in order to improve the healing process for different kinds of wounds. Determining the synergistic effects of probiotics and PBM, optimizing treatment procedures, and evaluating their efficacy in clinical settings are the main research difficulties.

Context/Short Synopsis

1. Which issue are you attempting to resolve?

Pressure sores and diabetic ulcers are examples of chronic wounds that present serious health risks and raise healthcare expenses and morbidity. Long healing times and antibiotic resistance are two common drawbacks of current therapy. Novel, safe, and efficient treatments that improve wound healing are required.

2. Is the answer now accessible?

Probiotics and PBM have both demonstrated potential in improving wound healing, but their combined effects have not been fully studied. Although there is a dearth of thorough research examining their synergistic advantages in clinical applications, existing studies demonstrate their promise. By methodically investigating the combined use of PBM and probiotics in wound care, this proposal seeks to close this knowledge gap.

Goals Anticipated:

A number of results are anticipated from this effort, including the identification of the best PBM parameters (wavelength, intensity, and duration) and probiotic strains that promote wound healing.

In preclinical and clinical contexts, there is evidence of better tissue repair and wound healing rates.

a deeper comprehension of the processes by which probiotics and PBM aid in healing, including how they affect microbial balance, inflammation, and collagen production.

creation of a clinical procedure that can be used in healthcare settings to integrate the use of probiotics with PBM in wound care.

Reference articles link.

1. Nanomedicine and advanced technologies for burns: Preventing infection and facilitating wound healing

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5742034/>

2. Mechanisms and applications of the anti-inflammatory effects of photobiomodulation

<https://www.aimspress.com/article/10.3934/biophy.2017.3.337/Related.html>

3. Photothermal/Photoacoustic Therapy Combined with Metal-Based Nanomaterials for the Treatment of Microbial Infections

<https://www.mdpi.com/2076-2607/11/8/2084>

4. Photophysical Mechanisms of Photobiomodulation Therapy as Precision Medicine

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9953702/>

5. Biophotonic Therapy Induced Photobiomodulation

https://link.springer.com/chapter/10.1007/978-3-030-45351-0_37

6. Knackstedt R, Gatherwright J. The role of topical probiotics on wound healing: A review of animal and human studies. **Int Wound J**. 2020;17(6):1687-1694. doi:10.1111/iwj.13451.

7. Houreld NN. Healing Effects of Photobiomodulation on Diabetic Wounds.

Appl Sci. 2019;9(23):5114.

doi:10.3390/app9235114.

8. Photobiomodulation (PBM) is the metabolic and cytological response of living cells to photons of “light energy”.

<https://www.appliedbiophotonics.com/photobiomodulation>

9. Biophotonic Therapy Induced Photobiomodulation

https://link.springer.com/chapter/10.1007/978-3-030-45351-0_37

10. How Biophotonics Is Harnessing Light for Health And Science

<https://www.photonicsonline.com/doc/how-biophotonics-is-harnessing-light-for-health-and-science-0001>

11. Probiotics in Wound Healing

[Probiotics in Wound Healing](#)

This article discusses the role of probiotics in promoting wound healing through various mechanisms.

12. Photobiomodulation Therapy for Wound Care

[Photobiomodulation Therapy for Wound Care](#)

This review examines the therapeutic applications of PBM in wound healing and its effectiveness.

13. Probiotics and Their Effect on Surgical Wound Healing

[Probiotics and Their Effect on Surgical Wound Healing](#)

This systematic review explores the impact of probiotics on surgical wound healing and their potential as therapeutic agents.

14. Probiotics, Photobiomodulation, and Disease Management

[Probiotics, Photobiomodulation, and Disease Management](#)

This article discusses the interplay between probiotics and PBM in managing diseases and enhancing healing.

15. Role of Beneficial Bacteria in Tissue Repair

[Probiotics or Pro-healers: The Role of Beneficial Bacteria in Tissue Repair](#)

This review highlights the pro-healing properties of probiotics and their mechanisms in tissue repair.

16. The Role of Topical Probiotics on Wound Healing

[The Role of Topical Probiotics on Wound Healing](#)

This article reviews animal and human studies on the effectiveness of topical probiotics in wound healing.

17. Low-intensity LASER and LED (photobiomodulation therapy) for pain control of the most common musculoskeletal conditions

<https://pubmed.ncbi.nlm.nih.gov/34913330/>

18. Photobiomodulation with simultaneous use of red and infrared light emitting diodes in the treatment of temporomandibular disorder: study protocol for a randomized, controlled and double-blind clinical trial

https://journals.lww.com/md-journal/fulltext/2019/02080/photobiomodulation_with_simultaneous_use_of_red.62.aspx

19. Pain management using photobiomodulation: Mechanisms, location, and repeatability quantified by pain threshold and neural biomarkers in mice

<https://onlinelibrary.wiley.com/doi/10.1002/jbio.201700370>

20. Effects of Low-Level Laser Therapy on Skeletal Muscle Repair

https://journals.lww.com/ajpmr/abstract/2014/12000/effects_of_low_level_laser_therapy_on_skeletal.7.aspx



மனோன்மனியம் சுந்தரனார் பல்கலைக்கழகம்

திருநெல்வேலி - 627 012 இந்தியா

MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI - 627.012 INDIA

Serial Number : PC 00455436

Date of Publication : 05/10/2021

PROVISIONAL CERTIFICATE

This is to certify that the undermentioned Candidate has qualified for the Degree Examination as detailed below

Name of the Candidate

DINESH G

Register Number

A17AC40B0002

Centre Code

AC4

College

**M.S.U. EDUCATION CENTRE
VELLORE**

Month & Year of Passing

MAY-2020

Degree

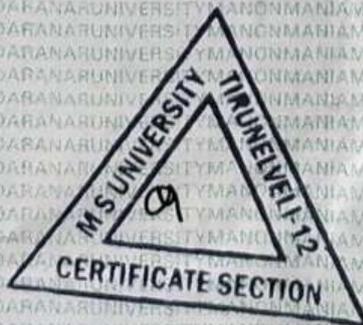
BACHELOR OF SCIENCE

Subject

PHYSICS

Class

**PART I TAMIL - SECOND
PART II ENGLISH - SECOND
PART III - SECOND
PART IV - PASS**



G. Thirumangalakudi
Assistant / Deputy Registrar

Dr. A. Suruliandi
Controller of Examinations

1/c



Bharathidasan University

(Accredited with A+ Grade by NAAC in the Third Cycle)

Tiruchirappalli



CENTRE : 555

REGISTER NO. : PN21460363

FOLIO NO. : PS 31013

PROVISIONAL CERTIFICATE

This is to certify that **DINESH G**
has qualified for the **DEGREE OF MASTER OF SCIENCE**,
he/she having passed the **M.Sc. DEGREE EXAMINATIONS**
held in **NOVEMBER 2023**.

SUBJECT : PHYSICS

CLASS : FIRST CLASS



Museen

[Signature]

OFFICE SEAL DEPUTY/ASSISTANT REGISTRAR

CONTROLLER OF EXAMINATIONS

DATE : 25-05-2024



மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
MANONMANIAM SUNDARANAR UNIVERSITY

MODE: DISTANCE

TIRUNELVELI, TAMIL NADU, INDIA.

STATEMENT OF MARKS

Sl. No. DJ 00030178

COURSE: B.Sc. PHYSICS

MEDIUM: ENGLISH

NAME OF THE CANDIDATE DINESH G		REGISTER No. A17AC40B0002	YEAR III	DATE OF PUBLICATION 05/10/2021
NAME OF THE CENTRE M.S.U. EDUCATION CENTRE VELLORE			CENTRE CODE AC4	MONTH AND YEAR MAY-2020

PART CODE	SUBJECT CODE	NAME OF THE SUBJECT	NO. OF CREDITS	MARKS		TOTAL MARKS	MAX. MARKS	RESULT	YEAR OF PASSING
				INT.	EXT.				
1	DJ1H1	Kavithai, Urainadai, Kathaithamil, Molipayirchi	5	P	P	58	100	P	M-18
2	DJ3B1	Prose, Poetry, Short Stories, One Actors, Language Study	4	P	P	55	100	P	M-18
3	DJK1A	Properties of Matter	8	P	P	49	100	P	M-19
3	DJK1B	Allied I Basic Electronics	7	P	P	48	100	P	M-19
1	DJ1H2	Cheyyl, Nadagam, Ilakkiavaralaru, Molipayirchi	5	P	P	54	100	P	M-19
2	DJ3B2	Prose, Poetry, Extensive Reader, Language Study-I, Language Study-II	4	P	P	55	100	P	M-19
3	DJK2A	Electricity and Magnetism	8	P	P	45	100	P	M-19
3	DJK2B	Mechanics and Accoustics	8	P	P	53	100	P	M-19
3	DJK2C	Allied II Energy Physics	8	P	P	45	100	P	M-19
4	DJEVS	Environmental Studies	3	P	P	54	100	P	M-19
3	DJK3A	Modern Physics	8	P	P	57	100	P	M-20
3	DJK3B	Optics and Thermal Physics	8	P	P	61	100	P	M-20
3	DJK3C	Digital Electronics	8	P	P	58	100	P	M-20
3	DJKP1	Practical Physics - I	6	P	P	53	100	P	M-20
3	DJKP2	Practical Physics - II	6	P	P	54	100	P	M-20

PART I - LANGUAGE		PART II - ENGLISH		PART III - MAJOR / ANCILLARY	
TOTAL MARKS 112/200	CLASS SECOND	TOTAL MARKS 110/200	CLASS SECOND	TOTAL MARKS 523/1000	CLASS SECOND

SIGNATURE OF THE CANDIDATE

PART-IV: PASS

Dr. A. Suruliandi

Abbreviations : P - Pass, F - Fail, WW - Withheld, AA - Absent
Ext. Pass Min. : 32; Max. Mark 80
Int. Pass Min. : NIL; Max. Mark 20
Aggregate Passing Min. : 40
Note : Any alteration or overwriting makes this statement of marks invalid.

CONTROLLER OF EXAMINATIONS i/c



Bharathidasan University, Tiruchirappalli

(Accredited with 'A+' Grade by NAAC in the Third Cycle)



M.Sc.
CONSOLIDATED

DEGREE EXAMINATIONS STATEMENT OF MARKS

NOVEMBER 2023 NON-SEMESTER

FOLIO NO. P.G./F 006785

NAME OF THE CANDIDATE		REGISTER NO.	COURSE
DINESH G		PN21460363	PHYSICS
CENTRE CODE & NAME	555	VELLORE CENTRE	

SUBJECT CODE	YEAR SEM.	TITLE OF SUBJECT	APPEARED	MAX MARKS		MARKS SECURED			RESULT
				I.A.	U.E.	I.A.	U.E.	TOTAL	
PN15PY1	1	MATHEMATICAL PHYSICS AND NUMERICAL METHODS	APR 2022	---	100	---	51	51	PASS
PN15PY2	1	CLASSICAL DYNAMICS AND RELATIVITY	APR 2022	---	100	---	69	69	PASS
PN15PY3	1	ANALOG ELECTRONICS AND MICROPROCESSOR	APR 2022	---	100	---	55	55	PASS
PN15PY4	1	ELECTROMAGNETIC THEORY	APR 2023	---	100	---	64	64	PASS
PN15PY5P	1	PHYSICS PRACTICALS - I (GENERAL EXPERIMENTS)	APR 2022	---	100	---	98	98	PASS
PN15PY6	2	QUANTUM MECHANICS	APR 2023	---	100	---	64	64	PASS
PN15PY7	2	STATISTICAL MECHANICS	APR 2023	---	100	---	60	60	PASS
PN15PY8	2	SOLID STATE PHYSICS	APR 2023	---	100	---	60	60	PASS
PN15PY9	2	ATOMIC & MOLECULAR PHYSICS / NUCLEAR & PARTICLE PHYSICS	NOV 2023	---	100	---	81	81	PASS
PN15PY10P	2	PHYSICS PRACTICAL - II (ADVANCED ELECTRONICS EXPERIMENTS)	APR 2023	---	100	---	97	97	PASS
***** END OF STATEMENT *****									
TOTAL MARKS OUT OF 1000									
FINAL RESULT : FIRST CLASS									
699									

DATE: 25-05-2024

PASSING MINIMUM: 50% IN U.E.

RA - Reappearance

I.A. - INTERNAL ASSESSMENT U.E. UNIVERSITY EXAMINATION ABS - ABSENT



OFFICE SEAL

UNIT OFFICER / SECTION HEAD

Cheran

[Signature]
CONTROLLER OF EXAMINATIONS



Bharathidasan University

(Accredited with A+ Grade by NAAC in the Third Cycle)

Tiruchirappalli



CENTRE : 555

REGISTER NO. : PN21460363

FOLIO NO. : PS 31013

PROVISIONAL CERTIFICATE

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held in **NOVEMBER 2023**.

SUBJECT : PHYSICS

CLASS : FIRST CLASS



Museen

[Signature]

OFFICE SEAL DEPUTY/ASSISTANT REGISTRAR

CONTROLLER OF EXAMINATIONS

DATE : 25-05-2024



ARMATS BIOTEK

TRAINING AND RESEARCH INSTITUTE (ABTRI)



Dr.Arumugam Perumal M.Sc.,B.Ed.,M.Phil.,Ph.D.,(U.S.A)
Director – Research & Development

CERTIFICATE

This is to certify that **Mr. DINESH. G (Reg No: PN21460363) M.Sc., Physics** of **BHARATHIDASAN UNIVERSITY**, has carried out his **TRAINING** entitled **“FORTIFICATION OF PROBIOTIC BACTERIA IN SOY MILK FROM BARNYARD MILLET”** at **ARMATS BIOTEK TRAINING AND RESEARCH INSTITUTE, Guindy, Chennai** during the period of **3rd October 2023 to 18th January 2024** under my guidance and supervision.



Dr.P.ARUMUGAM
DIRECTOR

SERVE HUMANITY THROUGH SCIENCE

No.1/3, 1 st floor, Manthoppu 3rd street, Five Parloug Road, Maduvinkarai, Guindy, Chennai - 600 032.

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आयकर विभाग Income Tax Department

PAN VERIFICATION RECORD

Permanent Account Number

FQSPD2954M

Name	G DINESH	
Gender	MALE	
DOB	18/02/1999	
Verified On	07/11/2022 09:56:05	



Digitally Signed On:
07/11/2022 09:56:05 IST



Note:

1. This PAN data is verified by DigiLocker (<https://digilocker.gov.in>) as per data provided by the issuing authority, Income Tax Department, Govt. of India.
2. This digitally signed verification document is valid as per the IT Act 2000 when used electronically.



UNION OF INDIA DRIVING LICENSE

Issuing Authority : RTO, RANIPET

Authorization to Drive : LMV, MCWG

Date of Issue : 28/09/2018

License No. : TN73 20180005848

Date of Expiry : 27/09/2038

Name : DINESH G

DOB : 18-02-1999

Blood Group : A+

S/W/D : GUNASEKARAN

Present Address : 3/69 SATHYA NAGAR, TAJPURA, ARCOT TK,
VELLORE DT, TN, 632521

Permanent Address: 3/69 SATHYA NAGAR, TAJPURA, ARCOT TK,
VELLORE DT, TN, 632521



Digitally signed by
Ministry of Road
Transport & Highways
Government of India
Date: 07/11/2022 09:55:51 IST



Note:

1. This Driving License is generated by DigiLocker (<https://digilocker.gov.in>) as per data provided by the issuing authority in the National Registry of Ministry of Road Transport and Highways.
2. This digitally signed document is valid as per the IT Act 2000 when used electronically.



Other Backward Class Certificate



Certificate No: **TN-620240719430**

Date: 28-07-2024

This is to certify that Thiru. **Dinesh G** son of Thiru Gunasekaran of Village Tajpura District/Division Ranipet in the Tamil Nadu State belongs to the Vanniyakula Kshatriya Community which is recognised as a Backward Class under the Government of India, Ministry of Welfare Resolution No. 12011/68/93-BCC(C) dated 10th September, 1993 published in the Gazette of India Extraordinary Part I Section I, No. 186 dated 13th September 1993.

II) Government of India, Ministry of Welfare resolution No.12011/68/93-BCC(C) dated 10th September, 1993 published in the Gazette of India Extraordinary Part-I Section-I, No. 163 date 20.10 1994.

III) Resolution No. 12011/68/93-BCC(C) dated 10th September, 1993 in the Gazette of India Extraordinary Part-I Section-I, No.88 date 25th May 1995.

Thiru. **Dinesh G** and/or his family ordinarily reside(s) in the Ranipet District of the Tamil Nadu State. This is also certify that he/she does not belong to the person/sections (creamy layer) mentioned in column 3 of the schedule to the Government of India, Department of Personnel and Training O.M. No.36012/22/93-Estt.(SCT), dated 08.09.1993 and modified vide Government of India, Department of Personnel and Training O.M No:36033/1/2013-Estt (Res) dated 27.05.2013 and 13.09.2017.

Note: a) The term Ordinarily used here will have the same meaning as section 20 of Representative of the Peoples Act 1950.

b) Where there Certificate are issued by Gazetted Officers of the Union Government of the State Governments, they should be in the same form but countersigned by the District Magistrate of Deputy Commissioner (Certificate issued by Gazetted Officer and attested by District Magistrate / Deputy Commissioner are not sufficient).

Validity unknown Signature valid

Digitally signed by SURRANIAN
BAKKIYALAKSHMI

Date: 28/07/2024 07:55:19 IST

District : Ranipet

Taluk : Arcot

Designation: Tahsildar

Remarks:

This certificate is digitally signed and does not require any seal / signature in original.

Genuineness of the certificate can be verified by.

(a) Keying in the unique certificate number TN-620240719430 in the URL <https://tnedistrict.tn.gov.in/tneda/VerifyCerti.xhtml>.

(or)

(b) Reading the 2D barcode with mobile barcode reader and verify through online.

Certificate validity period : 28-07-2024 to 31-03-2025

