AQAR (2021-2022)

CRITERION 3 – RESEARCH, INNOVATIONS AND EXTENSION

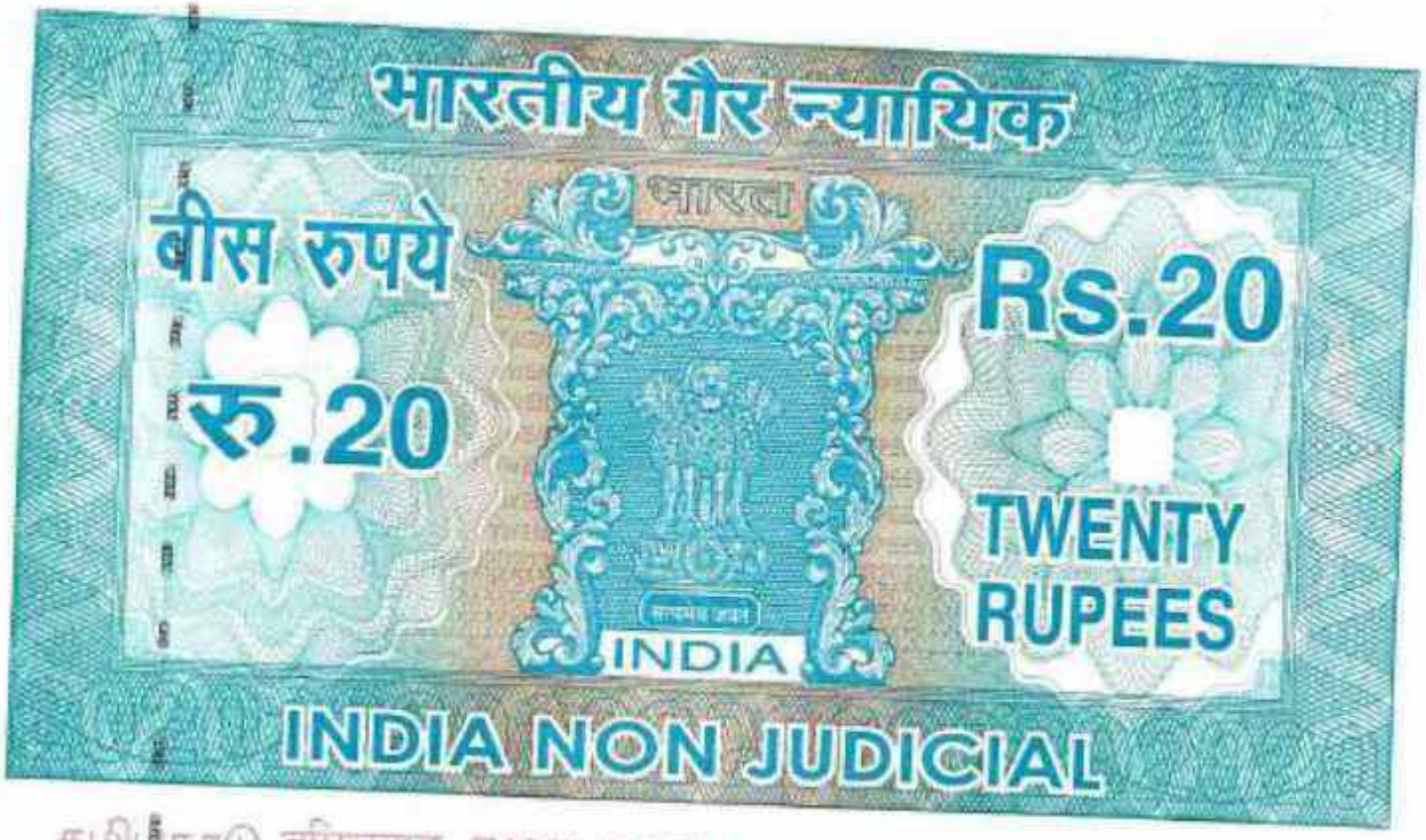
3.5 COLLABORATION

3.5.1.1 - Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship year wise during the Academic Year (2021-2022)

3.5 Collaboration

3.5.2.1 - Number of functional MoUs with Institutions of national, international importance, other universities, industries, corporate houses etc. year wise during the Academic Year (2021-2022)

S.No.	Name of the institution/ industry/ corporate house with whom MoU is signed	Year of signing MoU	Duration	List the actual activities under each MoU	Number of students/ teachers participated under MoUs	Page No.
1.	Alpha Omega Research Foundation, Salem	2022	5 Years	M.Sc Project	14	1-46
2.	ABS Biokare, Puducherry	2022	5 Years	Internship	7	47-71
3.	AWE Care Research Laboratories, Erode	2018	3 Years	Internship	29	72-114
4.	ExtroMind Technologies, Tiruchengode	-	-	MCA-Training Programme	3	115
5.	PBS Technology Solutions	2019	5 Years	MCA-Training Programme	2	116



தமிழ்நாடு तमिलनाडु TAMIL NADU

94AB 983008

2.1.2022

THE PRINCIPAL, SENGUNTHAR
ARTS AND SCIENCE COLLEGE,
TIRUCHENGODE

T.N.D. சுந்தாமூர்த்தி,
முத்திரைத்தாள் விற்பனையாளர்,
L.No. 6 / 1997
திருச்செங்கோடு-637 211.

SENGUNTHAR ARTS AND SCIENCE COLLEGE, TIRUCHENGODE

AND

ALPHA OMEGA RESEARCH FOUNDATION, SALEM

Educational Training, Research and Development

Memorandum of Understading

This memorandum of understanding (MOU) is made and entered into in this 6th day of June 2022.

BETWEEN

Sengunthar Arts and Science College, Tiruchengode, represented by Principal, having his office at Tiruchengode here in after called the First party.

AND

Alpha Omega Research Foundation, Salem represented by Dr. V. K.Evanjelene, Managing Director (by designation), having her office at 16, Anbu Nagar, Water Tank Back Side, Gorimedu, Salem – 636008 here in after called the Second party

Party 1

Sengunthar Arts and Science College Tiruchengode, engaged in offering higher education in leading to award of degree B.Sc, M.Sc, M.Phil, Ph.D.

Party 2

The aim of Alpha Omega Hi-Tech Bio Research Centre, is to serve as a means for updating the scientific knowledge in all the biological fields.

The Alpha Omega Research Centre is related with the research work/ projects for the students of B.Sc.,M.Sc., M.Phil., Ph.D., and also conduct of conferences, Career oriented training programs in the various fields (Pharmaceutics, Pharmaceutical Technology, Nanotechnology, Biopharmaceutics, Pharmacokinetics, Industrial Pharmacy, Pharmaceutical Chemistry, Pharmaceutical Analysis, Organic Chemistry, Medicinal Chemistry, Green Chemistry, Pharmacology and Toxicology, Clinical Pharmacy, Pharmacognosy, Phytochemistry, Natural Products, Pharmaceutical Microbiology, Biotechnology, Biochemistry, Zoology, Botany, Medicinal plant, Synthesis of nanoparticles, Compound Isolation, Water analysis, Food and soil analysis, Microbial Biotechnology, Plant tissue culture, Pre-clinical activities and Molecular Biology, etc.,).

The Alpha Omega Hi Tech Bio Research Centre was established under the trust, "Bio Vision Trust" Reg No: 883/ 2009 on 16th Oct 2009 and the Research Centre became functional on 19th Oct 2012, when the Director of the Centre assumed charge. Later in 2021 the name changes to Alpha Omega Research Foundation.

Agreement is for a period of five years from the date of signing the agreement.

Now this MoU witnesses that

- Sengunthar Arts and Science College Tiruchengode shall permit the life science departments faculty, to act as visiting professor/ guest lecture of the Research Centre.
- Alpha Omega Research Foundation shall support in technical assistance, research support and development for the benefit of Sengunthar Arts and Science College Tiruchengode.

ATTESTED

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TIRUCHENGODE - 637 205.

Joint Responsibilities of Alpha Omega Research Foundation, Salem and Sengunthar Arts and Science College, Tiruchengode.

- Encourage direct contact and collobaration between our faculties.
- Colloborate in organising academic seminar/conference/workshop/symposium on issues of mutual consent.
- Exchange information including, but not limited to, of academic materials, research publications, colloborate in writing and publishing where possible.
- Promote teaching, research and learning activities.
- Sengunthar Arts and Science College and Alpha Omega Research Foundation, Salem shall share laboratory, equipements, library resources, databases etc.
- Colloborate in organizing training/ projects to develop students, young scientist and researchers.
- Colloborate research works will be carried out related to the phytomedicine and medicinal plants to cure the diseases like Cancer, Diabetes, Inflammation, Arthritis.. etc.,
- Colloborate to conduct the herbal awareness program and to explain the advantage of those herbal items/ herbal plants.
- Colloborate in organising the training programmes for preparation of bioproducts.
- Colloborate in organising skill development programmes for the school/ college students from rural areas.
- Colloborate in organising vocational training programmes for the Science students.
- Enhancing scientific temper among the students through imparting science based education.
- Colloborate in giving training on small scale industries specifically connected with bioproducts.
- Seagunthar Arts and Science College and Alpha Omega Research Foundation, Salem agree to publish books, magazines, journals, bulletins etc.
- Sengunthar Arts and Science College and Alpha Omega Research Foundation, Salem agree to submit joint Projects for the Government funding Agencies like DBT, CSIR, MSME, DST etc.,.
- Sengunthar Arts and Science College and Alpha Omega Research Foundation Salem, agree to submit joint proposals to Indian and abroad funding

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agencies for colloborative research and for their upliftment of Student community.

- The Intellectual Property Rights (IPR) that arise as a result of joint research and collaborative activity under the agreement will be worked out on a case to case basis and will be consistent with officially laid down IPR policies of the two institutes.
- The above mentioned terms and conditions are fully read and understood by both parties in presence of the following witnesses who signed here under.

Principal,
Sengunthar Arts and Science College,
Tiruchengode

PRINCIPAL,
SENGUNTHAR ARTS AND SCIENCE COLLEGE,
TIRUCHENGODE - 637 205.
NAMAKKAL Dt, TAMIL NADU.

Director,
Alpha Omega Research
Foundation, Salem

Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu,
SALEM- 636 008.

Seal:

Seal:

Witness
1. P. Senthilkumaran Asst. Prof & Biochemistry
2. [P. BALAMURUGAN] ISAC-coordinator

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

STUDIES ON PHYTOCHEMICAL, ANTIMICROBIAL AND GC-MS ANALYSIS OF LIGUSTRUM SINENCE

Dissertation

submitted to Periyar University

in partial fulfilment of requirement for the award of the degree of

MASTER OF SCIENCE IN BIOTECHNOLOGY

Submitted by

M.BALAJI

REG.No.20PBT1085

Under the guidance of

Mr. K. VIVEK M.Sc., (Ph.D)

PG & RESEARCH DEPARTMENT OF BIOTECHNOLOGY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

(Affiliated to Periyar University, Salem and Approved by AICTE, New Delhi)

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Since 1991

Tiruchengode – 637 205

TAMILNADU,INDIA

JUNE - 2022

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

09/05/2022

Ref No: AORF/PW/475/2022

CERTIFICATE

This is to certify that **Mr.M.BALAJI (Reg.No:20PBT1085), DEPARTMENT OF BIOTECHNOLOGY,** Senguthar Arts & Science College Tiruchengode, Tamil Nadu,Has Successfully Completed The Project Titled ***"STUDIES IN PHYTOCHEMICAL, ANTIMICROBIAL AND GC-MS ANALSYSIS OF LIGUSTRUM SINENCE"*** is record of original research work done during the period from 07/01/2022 to 08/03/2022 The above mentioned student completed him project work in exemplary manner. Him conduct and character were good

DIRECTOR
Dr. V.K. EVANJELENE,
Principal,
Alpha Omega Research Foundation,

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

CERTIFICATE

This is to certify that the dissertation entitled **"*STUDIES IN PHYTOCHEMICAL, ANTIMICROBIAL AND GC-MS ANALSYSIS OF LIGUSTRUM SINENCE*"** submitted in partial fulfillment of the requirement for the award of the degree of **MASTER OF SCIENCE IN BIOTECHNOLOGY** is a record of the bonafide Research work carried out by **M.BALAJI (Reg.No 20PBT1085)** during the period of is/(Reg No study in the in PG & Research Department of Biotechnology, Senguntlıar Arts & Science College, Tiruchengode, under my supervision and guidance and the dissertation has not formed the basis for the award of any Degree /Diploma /Associateship /Fellowship or other similar titles to any other candidate of any other University or Institution of higher learning.

Countersigned by,

Head of the Department

(Dr.P.VANATHI)

Dr.P. Vanathi
Head & Assistant Professor
& Research Department of Biotechnology
enguntlıar Arts and Science College
Tiruchengode, Namakkal (Dist.)
Pincode - 637 205

Signature of

Guide and Supervisor

(Mr.K.VIVEK)

Submitted for the viva-voce examination held on 09.06.2022

External Examiner

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ISOLATION OF ENZYME PRODUCING MICROORGANISM FROM FISH WASTES

Dissertation submitted to Periyar University

in partial fulfillment of requirement for the degree of

MASTER OF SCIENCE IN BIOTECHNOLOGY

Submitted by

E.THANISKA

(REG.No.20PBT1694)

Under the guidance of

Mrs.K.VISHNUKUMARI M.SC.,M.Phil.,

PG & RESEARCH DEPARTMENT OF BIOTECHNOLOGY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

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JUNE -2022

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

09/05/2022

Ref No: AORF/PW/475/2022

CERTIFICATE

This is to certify that **Ms.E.THANISHKA (Reg.No:20PBT1094), DEPARTMENT OF BIOTECHNOLOGY**, Sengunthar Arts & Science College Tiruchengode, Tamil Nadu,Has Successfully Completed The Project Titled ***"ISOLATION OF ENZYME PRODUCING MICROORGANISM FROM FISH WASTES"*** is record of original research work done during the period from 07/01/2022 to 08/03/2022.The above mentioned student completed her project work in exemplary manner. Her conduct and character were good

DIRECTOR
Dr. V.K. EVANJELENE,

ATTESTED
PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

CERTIFICATE

This is to certify that the dissertation entitled ***"ISOLATION OF ENZYME PRODUCING MICROORGANISM FROM FISH WASTES"*** submitted in partial fulfillment of the requirement for the award of the degree of **MASTER OF SCIENCE IN BIOTECHNOLOGY** is a record of the bonafide Research work carried out by **E.THANISKA** (Reg.No 20PBT109) during the period of is/(Reg No study in the in PG & Research Department of Biotechnology, Senguntha Arts & Science College, Tiruchengode, under my supervision and guidance and the dissertation has not formed the basis for the award of any Degree /Diploma/Associateship /Fellowship or other similar titles to any other candidate of any other University or Institution of higher learning.

Countersigned by,

Head of the Department

7/6/2022

(Dr.P.VANATHI)
Dr.P. Vanathi
Head & Assistant Professor
PG & Research Department of Biotechnology
Senguntha Arts and Science College
Tiruchengode, Namakkal District
Pincode - 637 205

Signature of

Guide and Supervisor

(Mrs.K.VISHNUKUMARI)

Submitted for the viva-voce examination held on 09.06.2022

External Examiner 1 .....

9/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"PHYTOCHEMICAL EVALUATION AND ANTI-INFLAMMATORY ACTIVITY OF LEAVES OF *FAGONIA CRETICA*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

ASHOK R M

Reg.No: 20PBC1059

UNDER THE GUIDANCE OF

Mr. P.SENTHILKUMARAN M.Sc., M.Phil.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

19, Anbu Nagar, Gorimedu, Salem- 636 008. Tamilnadu, India.

90942 02364, 95000 99119
alphaomegalovision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/466/2022

CERTIFICATE

This is to certify that **MR. R. M. ASHOK (Reg No: 20PBC1059), DEPARTMENT OF BIOCHEMISTRY,** Senguntar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled "***In vitro* Assay to Investigate the Anti-inflammatory activity of *Fagonia cretica***" is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed his project work in exemplary manner. His conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE.
Proprietor,
Alpha Omega Research Foundation
19, Anbu Nagar, Gorimedu, SALEM-6

ATTESTED

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Since 1991

TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"PHYTOCHEMICAL EVALUATION AND ANTI-INFLAMMATORY ACTIVITY OF LEAVES OF *FAGONIA CRETICA*"** a bonafide record of independent project work done by **Mr.R.M.ASHOK, Reg.No.20PBC1059** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

3/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

03/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1. 6/6/22
2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"PHYTOCHEMICAL SCREENING, ANTIBACTERIAL ACTIVITY AND SILVER NANOPARTICLE SYNTHESIS OF AQUEOUS EXTRACT OF *TERMINALIA BELLIRICA*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

BASKAR.G

Reg.No: 20PBC1060

UNDER THE GUIDANCE OF

Mrs.J.MALLIKA M.Sc., M.Phil., M.A.(YOGA).,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

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TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 008. Tamilnadu, India.

98942 62364, 95005 50115

alphaomegabiovision@gmail.com
md@alphaomegaresearch.com

www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/467/2022

CERTIFICATE

This is to certify that **MR. G. BASKAR (Reg No: 20PBC1060), DEPARTMENT OF BIOCHEMISTRY,** Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Green Synthesis of Silver Nanoparticles and its Characterization of *Terminalia bellirica*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed his project work in exemplary manner. His conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-8.

ATTESTED

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
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Since 1991
TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"PHYTOCHEMICAL SCREENING, ANTIBACTERIAL ACTIVITY AND SILVER NANOPARTICLE SYNTHESIS OF AQUEOUS EXTRACT OF TERMINALIA BELLIRICA"** a bonafide record of independent project work done by **Mr.G.BASKAR, Reg.No.20PBC1060** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

03/06/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

3/6/22

Mrs.J.MALLIKA M.Sc.,M.Phil.,M.A(yoga)
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 06.06.2022

Submitted for viva- voice examination held on 06.06.2022

Examiners:

1. 6/6/22
2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"SYNTHESIS OF ZINC OXIDE NANOPARTICLES USING METHANOLIC LEAF EXTRACT OF OLDENLANDIA CORYMBOSA"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

DHINESHKUMAR K

Reg.No: 20PBC1062

UNDER THE GUIDANCE OF

Mrs. K.KARTHIKA M.Sc., M.Phil., B.Ed.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

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TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 008. Tamilnadu, India.

09042 62364, 95005 50115
alphaomegadivision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/468/2022

CERTIFICATE

This is to certify that **MR. K. DINESH KUMAR (Reg No: 20PBC1062), DEPARTMENT OF BIOCHEMISTRY,** Senguntha Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Synthesis of Zinc Oxide Nanoparticles using Methanolic Leaf Extract of *Oldenlandia corymbosa*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed his project work in exemplary manner. His conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE.
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-8

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Since 1991

TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"SYNTHESIS OF ZINC OXIDE NANOPARTICLES USING METHANOLIC LEAF EXTRACT OF OLDENLANDIA CORYMBOSA"** a bonafide record of independent project work done by **Mr.K.DHINESHKUMAR, Reg.No.20PBC1062** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

3/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

2/6/22

Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1. 6/6/22

2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"ISOLATION AND IDENTIFICATION OF MICROORGNISMS FROM HOUSEHOLD WASTE WATER"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

DINESHKUMAR P

Reg.No: 20PBC1063

UNDER THE GUIDANCE OF

Mrs.J.MALLIKA M.Sc., M.Phil., M.A.(YOGA).,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

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TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 008, Tamilnadu, India.

98942 62364, 95005 50115
alphaomegabiovalan@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/469/2022

CERTIFICATE

This is to certify that **MR. P. DINESH KUMAR (Reg No: 20PBC1063), DEPARTMENT OF BIOCHEMISTRY,** Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Isolation and Identification of Micro-organisms from House Hold Waste Water"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed his project work in exemplary manner. His conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-8.

ATTESTED

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC
Since 1991
TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"ISOLATION AND IDENTIFICATION OF MICROORGNISMS FROM HOUSEHOLD WASTE WATER"** a bonafide record of independent project work done by **Mr.P.DINESHKUMAR,Reg.No.20PBC1063** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga).,Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

Mrs. J.MALLIKA M.Sc.,M.Phil.,M.A(yoga)
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 06.06.2022

Submitted for viva- voice examination held on 06.06.2022

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"ISOLATION AND IDENTIFICATIONOF MICROORGANISMS FROM MASTITUS MILK"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

NANTHAGOPAL R

Reg.No: 20PBC1064

UNDER THE GUIDANCE OF

Mrs. K.KARTHIKA M.Sc., M.Phil., B.Ed.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 006. Tamilnadu, India.

98942 62364, 95005 50115
alphaomegabiovision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/470/2022

CERTIFICATE

This is to certify that **MR. R. NANDHA GOPAL (Reg No: 20PBC1064), DEPARTMENT OF BIOCHEMISTRY,** Senguntha Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Isolation and Identification of Micro-organisms from Mastitis Milk"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed his project work in exemplary manner. His conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
15, Anbu Nagar, Gorimedu, SALEM-6.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

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Since 1991 TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"ISOLATION AND IDENTIFICATIONOF MICROORGANISMS FROM MASTITUS MILK"** a bonafide record of independent project work done by **Mr.R.NANTHAGOPAL, Reg.No.20PBC1064** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Senguntharr Arts And Science College, Tiruchengode-637205.

03/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Senguntharr arts and science college,
Tiruchengode-637205.

3/6/22

Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed.,
Research guide,
Senguntharr arts and science college,
Tiruchengode-637205.

Place: Tiruchengode
Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1.

2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"PHYTOCHEMICAL EVALUATION AND ANTI ARTHRITIC ACTIVITY OF LEAVES OF *ACACIA NILOTICA*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

DEEPIKA R

Reg.No: 20PBC1066

UNDER THE GUIDANCE OF

Mr. P.SENTHILKUMARAN M.Sc., M.Phil.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 638 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 006. Tamilnadu, India.

98942 62364, 95005 50115
alphaomegabiovibhor@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/471/2022

CERTIFICATE

This is to certify that **MS. R. DEEPIKA (Reg No: 20PBCI066), DEPARTMENT OF BIOCHEMISTRY,** Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"*In Vitro* Anti-arthritic Activity of *Acacia nilotica*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-6

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

SENGUNTHAR ARTS AND SCEINCE COLLEGE

(Affiliated to Periyar University, Salem And Approved by AICTE, New Delhi)
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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC

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TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"PHYTOCHEMICAL EVALUATION AND ANTI ARTHRITIC ACTIVITY OF LEAVES OF ACACIA NILOTICA"** a bonafide record of independent project work done by **Miss.R.DEEPIKA, Reg.No.20PBC1066** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY,** Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode.

Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"ISOLATION AND IDENTIFICATION OF MICROORGANISMS FROM HUMAN SKIN"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

JANANI P

Reg.No: 20PBC1067

UNDER THE GUIDANCE OF

Mrs.J.MALLIKA M.Sc., M.Phil., M.A.(YOGA).,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 008, Tamilnadu, India.

98942 82364, 95005 50115

alphaomegabiovision@gmail.com
md@alphaomegaresearch.com

www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/472/2022

CERTIFICATE

This is to certify that **MS. P. JANANI (Reg No: 20PBC1067), DEPARTMENT OF BIOCHEMISTRY,** Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Isolation and Identification of Micro-organisms from Skin"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation
16, Anbu Nagar, Gorimedu, SALEM-8.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

SENGUNTHAR ARTS AND SCEINCE COLLEGE

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An ISO 9001:2015 Certified Institution
Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC

Since 1991

TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled "" a bonafide record of independent project work done by **Miss.P.JANANI, Reg.No.20PBC1067** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

Mrs.J.MALLIKA M.Sc.,M.Phil.,M.A(yoga)
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 6/6/2022

Submitted for viva- voice examination held on 06/06/2022

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"SYNTHESIS OF ALUMINIUM NANOPARTICLE FROM SWERTIA CHIRATA"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

MYTHILI M

Reg.No: 20PBC1068

UNDER THE GUIDANCE OF

Mrs. K.KARTHIKA M.Sc., M.Phil., B.Ed.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 006, Tamilnadu, India.

04042 62364, 95005 50115
alphaomegabiovision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/473/2022

CERTIFICATE

This is to certify that **MS. M. MYTHILI (Reg No: 20PBC1068), DEPARTMENT OF BIOCHEMISTRY,** Senguntar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled "**Synthesis of Aluminium Nanoparticles and Its Characterization of *Swertia chirata***" is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
Anbu Nagar, Gorimedu, SALEM-3

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

SENGUNTHAR ARTS AND SCEINCE COLLEGE
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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC
Since 1991
TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"SYNTHESIS OF ALUMINIUM NANOPARTICLE FROM SWERTIA CHIRATA"** a bonafide record of independent project work done by **Miss.M.MYTHILI, Reg.No.20PBC1068** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY,** Mr.P.SENTHILKUMARAN M.Sc.,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

3/6/22 3/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1.

2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"ANTIDIABETIC ACTIVITY AND PHYTOCHEMICAL SCREENING OF CRUDE EXTRACT OF *LIMONIA CRENULATA*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

PONMANI M

Reg.No: 20PBC1069

UNDER THE GUIDANCE OF

Mr. P.SENTHILKUMARAN M.Sc., M.Phil.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Arbor Nagar, Gorimedu, Salem- 636 008. Tamilnadu, India.

9994262364, 95005 50115
alphaomegabiovision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/474/2022

CERTIFICATE

This is to certify that **MS. M. PONMANI (Reg No: 20PBC1069), DEPARTMENT OF BIOCHEMISTRY**, Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"*In Vitro* Evaluation of Antidiabetic Activity of *Limonia crenulata*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE.
Proprietor,
Alpha Omega Research Foundation,
Nagar, Gorimedu, SALEM-3

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE-637 205.

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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC
Since 1991 TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"ANTIDIABETIC ACTIVITY AND PHYTOCHEMICAL SCREENING OF CRUDE EXTRACT OF *LIMONIA CRENULATA*"** a bonafide record of independent project work done by **Mrs.M.PONMANI,Reg.No.20PBC1069** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Senguntar arts and science college,
Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Research guide,
Senguntar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date:

Submitted for viva- voice examination held on 06/06/22

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

INVITRO ANTIOXIDANT AND ANTICANCER ACTIVITY OF MCF 7 CELL LINE IN METHANOLIC EXTRACT OF *TINOSPORA CORDIFOLIA*

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

PRIYADHARANI A

Reg.No: 20PBC1070

UNDER THE GUIDANCE OF

Mrs. K.KARTHIKA M.Sc., M.Phil., B.Ed.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 008. Tamilnadu, India.

98942 62304, 95005 50115
alphaomegabiovision@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/475/2022

CERTIFICATE

This is to certify that **MS. A. PRIYADHARANI (Reg No: 20PBC1070), DEPARTMENT OF BIOCHEMISTRY,** Senguntha Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"*In Vitro* Antioxidant and Anticancer Activity of MCF-7 cell line in Methanolic extract of *Tinospora cordifolia*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR

Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-6

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC
Since 1991
TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled "**INVITRO ANTIOXIDANT AND ANTICANCER ACTIVITY OF MCF 7 CELL LINE IN METHANOLIC EXTRACT OF *TINOSPORA CORDIFOLIA***" a bonafide record of independent project work done by **Miss.A.PRIYADHARANI, Reg.No.20PBC1070** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY,** Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Sengunthar arts and science college,
Tiruchengode-637205.

Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode
Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"INVITRO ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF *BROPHYLLUM PINNATUM*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

TAMIZHARASI S

Reg.No: 20PBC1071

UNDER THE GUIDANCE OF

Mr. P.SENTHILKUMARAN M.Sc., M.Phil.,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem- 636 006. Tamilnadu, India

98942 62364, 95005 50115
alphaomegabioinfo@gmail.com
md@alphaomegaresearch.com
www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/476/2022

CERTIFICATE

This is to certify that **MS. S. TAMIZHARASI (Reg No: 20PBC1071), DEPARTMENT OF BIOCHEMISTRY,** Senguthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled **"Evaluation of *In Vitro* antimicrobial activity from *Bryophyllum pinnatum*"** is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

DIRECTOR

Dr. V.K. EVANJELENE.
Proprietor,
Alpha Omega Research Foundation,
16, Anbu Nagar, Gorimedu, SALEM-6.

SENGUNTHAR ARTS AND SCEINCE COLLEGE
(Affiliated to Periyar University, Salem And Approved by AICTE, New Delhi)
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Recognised Under Section 2(f) and 12(B) of UGC Act 1956 and Accredited by NAAC

Since 1991 TIRUCHENGODE – 637205

CERTIFICATE

This is to certify that the dissertation entitled **"INVITRO ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF *BROPHYLLUM PINNATUM*"** a bonafide record of independent project work done by **Miss.S.TAMIZHARASI, Reg.No.20PBC1071** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistantprofessor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

13/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Seagunthar arts and science college,
Tiruchengode-637205.

13/6/22

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Research guide,
Sengunthar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 03/06/22

Submitted for viva- voice examination held on 06/06/22

Examiners:

1. 6/6/22

2. 6/6/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

"INVITRO ANTIOXIDANT ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF *MORUS NIGRA*"

Dissertation thesis submitted to Periyar University for partial fulfillment of requirements for the degree of

MASTER OF SCIENCE BIOCHEMISTRY

PERIYAR UNIVERSITY, SALEM-11

Submitted By

VINOTHINI S

Reg.No: 20PBC1072

UNDER THE GUIDANCE OF

Mrs.J.MALLIKA M.Sc., M.Phil., M.A.(YOGA).,

DEPARTMENT OF BIOCHEMISTRY

SENGUNTHAR ARTS AND SCIENCE COLLEGE

TIRUCHENGODE – 637205.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

ALPHA OMEGA
RESEARCH FOUNDATION

16, Anbu Nagar, Gorimedu, Salem-636 006, Tamilnadu, India

98942 62364, 95005 50115

alphaomegatrainer@gmail.com
md@alphaomegaresearch.com

www.alphaomegaresearch.com

09/05/2022

Ref No: AORF/PW/477/2022

CERTIFICATE

This is to certify that **MS. S. VINODHINI (Reg No: 20PBC1072), DEPARTMENT OF BIOCHEMISTRY**, Sengunthar Arts & Science College, Tiruchengode, Tamil Nadu, has successfully completed the project titled "***In Vitro* Antioxidant Activity from Methanolic leaf extract of *Morus nigra***" is record of original research work done during the period from 07/01/2022 to 08/03/2022. The above mentioned student completed her project work in exemplary manner. Her conduct and Character were good.

DIRECTOR
Dr. V.K. EVANJELENE,
Proprietor,
Alpha Omega Research Foundation,
16 Anbu Nagar, Gorimedu, SALEM-6

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

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(Affiliated to Periyar University, Salem And Approved by AICTE, New Delhi)
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Since 1991
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This is to certify that the dissertation entitled **"INVITRO ANTIOXIDANT ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF *MORUS NIGRA*"** a bonafide record of independent project work done by **Miss.S.VINOTHINI, Reg.No.20PBC1072** under the supervision and submitted to Periyar university in partial fulfillment of the degree of **MASTER OF SCIENCE IN BIOCHEMISTRY**, Mr.P.SENTHILKUMARAN M.Sc,M.Phil, Assistant professor and Head, Mrs.J.MALLIKA M.Sc.,M.Phil., M.A(yoga)., Assistant professor, Mrs. K.KARTHIKA M.Sc.,M.Phil.,B.Ed. Department of Biochemistry, Sengunthar Arts And Science College, Tiruchengode-637205.

Mr. P.SENTHILKUMARAN,M.Sc.,M.Phil.,
Head department of Biochemistry,
Senguathar arts and science college,
Tiruchengode-637205.

Mrs. J.MALLIKA M.Sc.,M.Phil.,M.A(yoga)
Research guide,
Senguathar arts and science college,
Tiruchengode-637205.

Place: Tiruchengode

Date: 3/6/2022

Submitted for viva- voice examination held on 6/6/2022

Examiners:

1.

2.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU 100- BP 953465

19.7.2022
The Secretary and Correspondent
Sengunthar Arts and Science college

SENGUNTHAR ARTS AND SCIENCE COLLEGE, TIRUCHENGODE
AND
ABS BIOKARE, VILLIANUR, PUDUCHERRY-605110

Labs, Educational Training,Research and Publications

Memorandum of Understading

This memorandum of understanding (MOU) is made and entered into in this 22nd day of July, 2022.

BETWEEN

Sengunthar Arts and Science College, Tiruchengode, represented by Principal, having his office at Tiruchengode here in after called the First party.

AND

ABS Biokare laboratory, Pudhcherry represented by Dr. K.Sundar, Managing Director (by designation), having her office at No. 2. Madha koil street.,Villianur, Puducherry -605110 here in after called the Second party

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

Party 1

Senguntar Arts and Science College Tiruchengode, engaged in offering higher education in leading to award of degree B.Sc, M.Sc, M.Phil, Ph.D.

Party 2

The aim of ABS Biokare laboratory, is to serve as a means for updating the scientific knowledge in all the biological fields.

The ABS Biokare laboratory is related with the research work/ projects for the students of B.Sc.,M.Sc., M.Phil., Ph.D., and also conduct of conferences, Career oriented training programs in the various fields (Pharmaceutics, Pharmaceutical Technology, Nanotechnology, Biopharmaceutics, Pharmacokinetics, Industrial Pharmacy, Pharmaceutical Chemistry, Pharmaceutical Analysis, Organic Chemistry, Medicinal Chemistry, Green Chemistry, Pharmacology and Toxicology, Clinical Pharmacy, Pharmacognosy, Phytochemistry, Natural Products, Pharmaceutical Microbiology, Biotechnology, Biochemistry, Zoology, Botany, Medicinal plant, Synthesis of nanoparticles, Compound Isolation, Water analysis, Food and soil analysis, Microbial Biotechnology, Plant tissue culture, Pre-clinical activities and Molecular Biology, etc.,).

The ABS Biokare laboratory, Pudhcherry was established and Reg., ARN AA3403220014444Y in Puducherry dated 23-03-2022 is approved.The ARS Laboratory became functional on 23rd March 2022, Pudhcherry.

Agreement is for a period of five years from the date of signing the agreement.

Now this MoU witnesses that

- Senguntar Arts and Science College Tiruchengode shall permit the life science departments faculty, to act as visiting professor/ guest lecture of the Research Centre.
- ABS Biokare laboratory shall support in technical assistance, research support and development for the benefit of Senguntar Arts and Science College Tiruchengode.

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TIRUCHENGODE - 637 205.

Joint Responsibilities of ABS Biokare laboratory, Pudhcherry and Senguntar Arts and Science College, Tiruchengode.

- Encourage direct contact and collaboration between our faculties
- Collobvrate in organizing academic seminar/conference/workshop/symposium on issues of mutual concent
- Exchange information including, but not limited to, of academic materials, research publications, collobvrate in writing and publishing where possible.
- Promote teaching, research and learning activities.
- Senguntar Arts and Science College and ABS Biokare laboratory shall share laboratory, equipements, library resources, databases etc.
- Colloborate in organizing training/ projects to develop students, young scientist and researchers.
- Colloborate in organising the training programmes for preparation of bioproducts.
- Colloborate in organising skill development programmes for the school/ college students from rural areas.
- Colloborate in organising vocational training programmes for the Science students.
- Enhancing scientific temper among the students through imparting science based education.
- Colloborate in giving training on small scale industries specifically connected with bioproducts.
- Senguntar Arts and Science College and ABS Biokare laboratory,Pudhcherry agree to publish books, magazines, journals, bulletins etc.
- Senguntar Arts and Science College and ABS Biokare laboratory, Pudhcherry agree to submit joint Projects for the Government funding Agencies like DBT, CSIR, MSME, DST etc.,.
- Senguntar Arts and Science College and ABS Biokare laboratory, Pudhcherry agree to submit joint proposals to Indian and abroad funding agencies for colloborative research and for their upliftment of Student community.
- The Intellectual Property Rights (IPR) that arise as a result of joint research and collaborative activity under the agreement will be worked out on a case to case basis and will be consistent with officially laid down IPR policies of the two institutes.

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

- The above mentioned terms and conditions are fully read and understood by both parties in presence of the following witnesses who signed here under.

Principal,
Senguthar Arts and Science College,
Tiruchengode

Director,
ABS Biokare laboratory,
Pudhcherry

Seal:

Seal:

Witness

1.

2.

DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN).

19/7/22

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
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Since 1991

PG & RESEARCH DEPARTMENT OFMICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	P.INDIRAJITH
2	University Examination Register Number	C21PG127MIB004
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	'M.Sc.,Microbology
5	Nameof the institute in which for Internship Training Undergone	ABS Biokare labs/Research/Pubilication Puducherry.
6	Guide/Supervisor under whom the training undertaken	Dr.K.SUNDAR,M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination & Identification of food borne bacteria From meat
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	The predominant bacteria isolated from meat samples are *Staphylococcus sp. Klebsiella sp*
10	Outcome of the Training	Isolation of contaminated organisms from meat products.

P.Indirajith
Signature of the Student

Signature of the Guide
(Internal)

Head of the department
HEAD
DEPARTMENT OF MICROBIOLOGY
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN)

Principal

P.Indirajith

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

NAME : P.INDIRAJITH

REG.NO : C21PG127MIB004

ANNEXURE – I

BRIEF OUTPUT OF TRAINING

This study showed varying levels of bacterial contamination of retailed chicken sold in selected open markets Pondicherry. According to the Health Protection Agency guidelines for assessing microbiological safety of ready-to eat foods, The observation showed presence of different bacteriological profiles and loads still represents a public health hazard and signals the possible occurrence of foodborne intoxication and infection. Therefore, strict hygiene conditions, proper handling, and proper storage of poultry products by retailers should be adhered to. Also, continuous monitoring of bacteriological profiles and loads in abattoirs and sales points should be implemented.

RESULT

- Overall demographics, educational status, and food safety awareness of chicken retailers are summarized.
- With respect to what causes diseases, 80% were aware that microorganisms are responsible for diseases, while 18% said they were not aware of what causes diseases.
- In terms of inspection, sampling, and control by health authorities, 85% of the respondents claimed to have regular experience in the matters, while 8% rarely confront that issue.
- The predominant bacteria isolated from the samples are *Staphylococcus sp, Klebsiella sp,.*

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ABS Biokare
Labs/Research/Publications

INTERNSHIP CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. P. INDIRAJITH (Reg.no: C21PG127MIB[illegible]), M.Sc., Microbiology student of Sengunthar Arts and Science College, Tiruchengode - 637205 has undergone internship training on "Microbiological examination and identification of food borne bacteria" in our organization from 25.07.2022 to 19.08.2022 as a partial fulfilment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR
(Director)

ABS BIOKARE
Villianur
Puducherry

No. 2, [illegible], Villianur, Puducherry-[illegible]
[illegible]

ATTESTED

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Since 1991

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	R.KESAVAMURTHY
2	University Examination Register Number	C21PG127MIB005
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc, Microbology
5	Name of the institute in which for Internship Training Undergone	ABS Biokare Labs/Research/Pubilication Puducherry - 10
6	Guide/Supervisor under whom the training undertaken	Dr,K.SUNDAR, M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination and Identification of food borne bacteria in Poultry eggs
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	The pathogenic bacteria such as *E.coli* , *Staphylococcus sps*, *Salmonella sps.*
10	Outcome of the Training	I have gained knowledge about Food microbes

R Kesavamurthy
Signature of the Student

R KESAVAMURTHY

Signature of the Guide
(Internal)

Head of the Department
HEAD
DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205 (TN)

Principal

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

NAME : R.KESAVAMURTHY

ANNEXURE – I

REG.NO : C21PG127MIB005

BRIEF OUTPUT OF TRAINING

Chicken egg is one of the most nutritious and versatile human foods. On average, it consists of 10% shell, 58% albumin (white), and 32% yolk. Nutritionally, on average, whole freshly laid egg consists of 76.1% water, 12.6% protein, 9.5% fat, 0.7% carbohydrates, and 1.1% ash. Despite all the nutritional and economic attractions of the egg sector, there are also associated challenges, especially the risk of transmission of food-borne microbial diseases and spoilage. Contaminated eggs have been incriminated as the major cause of foodborne salmonellosis. A freshly laid hen's egg is generally devoid of microorganism, but soon after oviposition, the shell surface becomes contaminated by various spoilage and pathogenic microorganisms sources of eggshell microbial contamination may include the fecal matter, the nesting material, the feed, air and the collecting person, or the storage equipment. Moreover, eggs can also be inherently colonized from the natural flora of the laying hen. On average, the microbial load of the eggshell with regard to aerobic mesophilic bacterial count may range between 3.8 and 6.3 CFU/egg. Most commonly encountered microbial contaminants include *Pseudomonas, Alcaligenes, Proteus mirabilis, Salmonella* typhimurium, *Salmonella* Dublin,*Salmonella* braenderup, *Citrobacter, Escherichia coli,Enterobacter cloacae, Klebsiella, pneumonia, Enterococcus faecalis, Micrococcus, Staphylococcus* species, *Bacillus,* and *Stenotrophomonas maltophilia.* A total of 60 eggs were considered in the study consisting of 15 egg samples from the HU Poultry Farm (HUPF) and nine samples from each of five randomly selected retail shops located in five different city zones in Pondicherry. . The egg samples were subjected to bacteriology laboratory to determine the microbial activity on the eggs.

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. R. KESAVAMURTHY** (Reg.no. C21PG127MIB005), M.Sc., Microbiology student of Senguntthar Arts and Science College, Tiruchengode - 637205 has undergone internship training on "**Microbiological examination and identification of food borne bacteria**" in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR

(Director)

ABS BIOKARE Vallanai Puducherry 605110

No. 2, Mullai kuzhi st., Vallanai, Puducherry-605110

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Since 1991

PG & RESEARCH DEPARTMENT OFMICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	M.MOHAMED ARESHATHALI
2	University Examination Register Number	C21PG127MIB006
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc,Microbiology
5	Nameof the institute in which for Internship Training Undergone	ABS Biokare Labs/Research/Pubilication Puducherry-10
6	Guide/Supervisor under whom the training undertaken	Dr.K.Sundar,M.Sc,Ph.D.
7	Title of the training	Microbiological Examination & Identification of food borne bacteria in soft drinks.
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	Gram positive, *Staphylococcus aureus* was found from soft drinks.
10	Outcome of the Training	I have gained knowledge about soft drinks quality checking.

Signature of the Student
M. MOHAMED ARESHATHALI

Signature of the Guide
(Internal)

Head of the Department
HEAD
DEPARTMENT OF MICROBIOLOGY
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN)

Principal

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

NAME :Mohamed Areshathali

REG NO: C21PG127MIB006

ANNEXURE –I

BRIEF OUTPUT OF TRAINING

Microbiological Examination and Identification of food borne bacteria in soft drinks

- Isolation and identification of microbes on fruit containing soft drinks were studied because soft drinks contain low pH and they are heat resistant.
- The number of organisms present in sample decreases when the dilution factor increases, by serial dilution technique, colony forming unit per ml were studied.
- Spread plate count technique(SPCT) and streak plate method was carried out to obtain the isolated colonies from the mixed cultures at the end of 24 hrs and it was sub-cultured on nutrient broth.
- The specific isolated colonies were subjected to gram staining and motility techniques from the nutrient broth within 12 hrs.
- Gram staining procedure was carried out to differentiate both gram positive and negative organisms based on morphological characteristics.
- Motility test was carried out to identify motile and non-motile organisms to confirm the presence or absence of flagella.
- Identification of the particular isolates were carried out by doing bio-chemical reactions for all samples at the end of 24 hrs.
- Confirmatory tests such as urease test,catalase test and sugar fermentation test were carried out to confirm the presence of particular species of that organism within 24hrs of incubation.

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ABS Biokare

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. M. MOHAMED ARESHATHALI** (Reg.no: C21PG127MIB006), M.Sc., Microbiology student of Senguntar Arts and Science College, Tiruchengode - 637205 has undergone internship training on "**Microbiological examination and identification of food borne bacteria**" in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR

(Director)

ABS BIOKARE Villianur Puducherry 605110 Labs/Research/Publications

No. 2, Mailla koil st., Villianur, Puducherry-605110

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PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	D.MOHANRAJ
2	University Examination Register Number	C21PG127MIB007
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc, Microbology
5	Name of the institute in which for Internship Training Undergone	ABS Biokare Labs/Research/Publication Puducherry
6	Guide/Supervisor under whom the training undertaken	Dr.K.SUNDAR, M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination & Identification of food borne bacteria in Canned foods.
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	The canned food materials frequently spoiled with Bacillus (or) Butric acid bacteria.
10	Outcome of the Training	I know about canned food sampling and quality analysis.

Signature of the Student

Signature of the Guide (Internal)

Head of the department

DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN)

Principal

D. Mohan Raj

ATTESTED

PRINCIPAL
SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

Name : D.MOHANRAJ

ANNEXURE – I

Reg.No : C21PG127MIB007

BRIEF OUTPUT OF TRAINING

Canned foods is a method of food preservation in which food is processed and selected in the airtight container. Canning provides a shelf life that typhically ranges from one to five years, although under specific circumstances, it can be much longer. Spoilage is usually caused by growth of microorganisms following leakage or underprocessing. Unprocessed or leaking cans are of major concern and both pose potential health hazards. Naturally, if *Clostridium botulinum* (spores, toxin, or both) is found, the hazard is obvious. Packer seam, side panel, side seam, pinhole, cut code are the micro-leak test for analysis of canned foods.

The study was conducted during the period from July to August, 2022. The canned food samples were collected from different retail markets and super markets of Pondicherry.

A total of 5 canned samples, 3 new canned food samples from local market denoted as C1, C2 and C3, respectively with 2 in each case and rest 2 canned foods samples from different shops under specific brand name denoted as C4 and C5 with 2 in each case too, were collected. The canned food samples were subjected to bacteriology laboratory to determine the microbial spoilage of canned foods. *Bacillus thermoacidurans* (flat, sour tomato juice), *Butyric anaerobes* (tomatoes and tomato juice), Non spore formers (mostly lactic types) are examined in acid canned food samples.

It is apparent from our results that leakage is a major cause of microbiological spoilage of canned foods. Since cooling water is the primary source of microorganisms causing leaker spoilage (3) and container damage is the primary cause for leakage (2), more research needs to be done on the causes and effects of these problems. Government therefore should conduct frequent inspection of the marketed canned foods to check whether they meet the quality and should monitor the overall hygienic condition surrounding the production and handling of Canned foods. Realistic standards for the raw canned foods need to be revised and appropriate training should be given to the canned food industries in hygienic handling and canning of the canned food.

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ABS Biokare

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. D.MOHANRAJ** (Reg.no: C21PG127MIB007), M.Sc., Microbiology student of Senguntar Arts and Science College, Tiruchengode - 637205 has undergone internship training on **"Microbiological examination and identification of food borne bacteria"** in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and responsive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes,

Dr. K. SUNDAR

(Director)

ABS BIOKARE Villianur Puducherry 605110 Lab/Research/Publication

No. 2, Madha kovil st., Villianur, Puducherry 605110

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Since 1991

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	S.PUGAZHENDHI
2	University Examination Register Number	C21PG127MIB008
3	Name of the College	Senguntha Arts and Science College
4	Name of the Department	M.Sc,Microbiology
5	Nameof the institute in which for Internship Training Undergone	ABS Biokare labs/ Research / Publication Puducherry - 10
6	Guide/Supervisor under whom the training undertaken	Dr.K.Sundar,M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination & Identification of food borne bacteria in canned fish
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	The pathogenic bacteria such as *E. coli, Staphylococcus aureus, Salmonella sp.,* are contaminant in canned fish
10	Outcome of the Training	I gained knowledge about, canning, preservation microbes and quality checking of canned fish products.

Signature of the Student
S. Pugazhendhi

Signature of the Guide (Internal)

Head of the department
DEPARTMENT OF MICROBIOLOGY
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN).

Principal

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TIRUCHENGODE - 637 205.

NAME :S PUGAZHENDHI ANNEXURE – I

REG NO :C21PG127MIB008

BRIEF OUTPUT OF TRAINING

Microbiological Examination and Identification of food borne bacteria in canned fish

The present study showed that none of the canned sample was sterile. Tested samples showed the presence of different pathogenic bacteria such as *E. coli, Staphylococcus aureus, Salmonella sp, Vibrio sp, Listeria sp.* In samples where one pathogen is low in density, others also found to be low. This was true in the samples of higher density also. As samples belonged to different brands, these differences might be due to the production process itself. Though, proper canning process destroy most of the microbes present in the fish samples used for the processing, inadequateprocessing including heating, cooling and improper sealing etc. even the quality changes happened in fish, before processing also influence the quality of cannedfish. Although, all samples analysed were taken fromperfect cans, without any blown or leaky conditionsand well before the expiry date, the initial quality andthe processing methods might have influenced thequality of the canned fish product.

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INTERNSHIP CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. S PUGAZHENDHI** (Reg.no: C21PG127MIB008), M.Sc., Microbiology student of Sengunthar Arts and Science College, Tiruchengode - 637205 has undergone internship training on "**Microbiological examination and identification of food borne bacteria**" in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR
(Director)

ABS BIOKARE Villianur Puducherry 605110 Publication

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Since 1991

PG & RESEARCH DEPARTMENT OFMICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	D.SUZZENDARAN
2	University Examination Register Number	C21PG127MIB012
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc, Microbology
5	Nameof the institute in which for Internship Training Undergone	ABS Biokare Labs/Research/Pubilication – Puducherry - 10
6	Guide/Supervisor under whom the training undertaken	Dr. K. Sundar,M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination and Identification of food borne bacteria in canned Meat
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	Escherichia coli was examined and identified from canned meat
10	Outcome of the Training	I have gained knowledge about research technique

Suzzendaran.
Signature of the Student
D SUZZENDARAN

T.R.Prakash
Signature of the Guide
(Internal)
T.R.PRAKASH

Head of the department
DEPARTMENT OF MICROBIOLOGY
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN).

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Name : D.SUZZENDARAN

Reg.No : C21PG127MIB012

ANNEXURE – I

BRIEF OUTPUT OF TRAINING

The present study showed that none of the canned sample (Meat) was sterile. Tested samples showed the presence of different pathogenic bacteria such as *E. coli, Staphylococcus aureus, Salmonella spp, Vibrio spp, Listeria spp.* In samples where one pathogen is low in density, others also found to be low. This was true in the samples of higher density also. As samples belonged to different brands, these differences might be due to the production process itself. Though, proper canning process destroy most of the microbes present in the meat samples used for the processing, inadequateprocessing including heating, cooling and improper sealing etc. even the quality changes happened in meat, before processing also influence the quality of canned meat. Although, all samples analysed were taken fromperfect cans, without any blown or leaky conditionsand well before the expiry date, the initial quality andthe processing methods might have influenced the quality of the canned meat product

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This is to certify that **Mr. D.SUZZENDARAN** (Reg.no. C21PG37MB012), M.Sc., Microbiology student of Senguntar Arts and Science College, Tiruchengode - 637205 has undergone internship training on "**Microbiological examination and identification of food borne bacteria**" in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR
(Director)

ABS BIOKARE Villianur Puducherry 605110

No. 2, Madha Lalit st., Villianur, Puducherry-605110

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Since 1991

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	A.DHIVYARAJ
2	University Examination Register Number	C21PG127MIB001
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc, Microbology
5	Name of the institute in which for Internship Training Undergone	ABS Biokare Labs/Research/Pubilication Puducherry - 10
6	Guide/Supervisor under whom the training undertaken	Dr.K.SUNDAR, M.Sc.,Ph.D.,
7	Title of the training	Microbiological Examination and Identification of food borne bacteria in Milk.
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	The risk of milk-borne infections caused *E.coli* and *Staphylococcus sp* seem to be generally well understood with the good testing strategies.
10	Outcome of the Training	Learned about sampling and isolation of microbes from milk sample.

Signature of the Student

Signature of the Guide (Internal)

Head of the department

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TIRUCHENGODE - 637 205.

NAME : A.DHIVYARAJ

ANNEXURE – I

REG NO : C2IPG127MIB001

BRIEF OUTPUT OF TRAINING

Milk as well as dairy products are important sources of food borne pathogens and numerous epidermiological reports have implicated inadequate heat treated milk and raw milk products to be obtained as cleanest possible and not to harm the consumer's health. The presence of pathogenic bacteria in milk emerged major public health concerns. Many milk borne epidermics of human diseases are spread through consumption of contaminated milk. Few examples of the known milk borne diseases are bovine tuberculosis, brucellosis, anthrax, listeriosis, salmonellosis, leptospirosis, Q fever, campylobacteriosis and *E.coli* O157:H7 as an emerged new milk borne bacterial pathogen reported recently with a very serious health effects. To protect consumers and public health against these milk-borne infections it require proper hygienic milk handling procedures. Common bacteria reported to be isolated from milk include *Staphylococcus spp., Listeria spp., Salmonella spp., E.coli, Campylobacter spp., Mycobacterium spp., Brucella spp., Coxiella burnetii., Mycobacterium sps, Brucella spp, Coxiella burnetii, Yersinia spp., Pseudomonas aeroginosa* and *Corynebacterium ulcerans*. The study was conducted during the period from July to August, 2022. The milk samples were collected from different retail markets and farm house of Pondicherry.

A total of 8 liquid milk samples, 3 raw milk samples from dairy farm, chilling center and local market denoted as R1, R2 and R3, respectively with 4 in each case and rest 5 pasteurized milk samples from different shops under specific brand name denoted as P1, P2, P3, P4 and P5 with 4 in each case too, were collected. The liquid milk samples were subjected to bacteriology laboratory to determine the microbial load.

RESULT

The load of microbes was determined in raw and pasteurised milk by Total viable count (TVC), Total Staphylococcus Count (TSC) and Total Coliform Count (TCC) and Gram staining. It was resulted from the study that microbial loads of raw milk were not satisfactory. Therefore, it could be assume that the handler of raw milk do not maintain good personal hygiene. All most all brands of pasteurized milk tested in this study were of low quality based on BSTI standard. Presence of *E. coli* and *Staphylococcus spp.* were of public health concern. Government therefore should conduct frequent inspection of the marketed milks to check whether they meet the minimum legal standards and should monitor the overall hygienic condition surrounding the production and handling of milk. Realistic standards for the raw milks need to be revised and appropriate training should be given to the raw milk producers in hygienic handling of milk.

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This is to certify that **Mr. A.DHIVYARAJ** (Reg no: C2IPG17MB008), M.Sc., Microbiology student of Senguntha Arts and Science College, Tiruchengode - 637205 has undergone internship training on "**Microbiological examination and identification of food borne bacteria**" in our organization from 25.07.2022 to 10.08.2022 as a partial fulfillment of his course study.

During the period of internship program with us he had been exposed to different Microbiological identification methods and was found prompt, diligent and inquisitive.

We wish him every success in his life and career.

Issued date: 10.08.2022

With best wishes

Dr. K. SUNDAR

(Director)

ABS BIOKARE Villianur Puducherry 605110 Labs/Research Publications

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Tiruchengode – 637 205, Namakkal Dt., Tamilnadu

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	S. DILIP
2	University Examination Register Number	C21PG127MIB002
3	Name of the College	Senguntha Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories - Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph.D.,
7	Title of the training	Microbial Product Design and Development – Formulation of control agent test the efficacy Citrus canker disease control by *Pseudomonas sps*
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	Antagonistic activity of *Pseudomonas sps* Against Citrus canker disease was observed
10	Outcome of the Training	I learned development of plant disease control agent and the technique applied in it.

Signature of the Student
S. DILIP

Signature of the Guide (Internal)

Head of the Department
HEAD
DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN)

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TIRUCHENGODE - 637 205.

NAME : S.DILIP

REG. NO : C21PG127MIB002

ANNEXURE – I

BRIEF OUT OF TRAINING

Pseudomonas is a genus of Gram-negative, Gammaproteo bacteria, belonging to the family Pseudomonadaceae and 191 described species. *Pseudomonas*, a potential bacterial antagonist to control plant diseases. Pseudomonads belong to plant Growth Promoting Rhizobacteria (PGPR), play a major role in the plant growth promotion, induced systemic resistance, biological control of pathogens etc. Since the mid-1980s, certain members of the genus *Pseudomonas* have been applied to cereal seeds or applied directly to soils as a way of preventing the growth or establishment of crop pathogens. This practice is generically referred to as biocontrol. Antimicrobial activity of the rhizobacteria *Pseudomonas sp.* were carried out against phytopathogen, *Xanthomonas sp.* Four wells were cut down on the agar plates swabbed with *Xanthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Pseudomonas culture. The plates were incubated at 37°C for 24 hrs. In the case of bacterial pathogen, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The Zone of inhibition was measured in the plates of *Pseudomonas*. The result given in table No1. The zone of inhibition varioes depends on the concentration of *Pseudomonas*. The *Pseudomonas* effectively control the causative agent *Xanthomonas citri*.

Table No.1: Antimicrobial activity of the *Pseudomonas* Against *Xanthomonas sp.*

Concentration	Zone diameter Test - 1	Zone diameter Test - 2	Zone Average	pH Values
0.025ml	12mm	13mm	12.5mm	7.0
0.050ml	15mm	15mm	15mm	7.0
0.075ml	17mm	16mm	16.5mm	7.0
0.100ml	18mm	20mm	19mm	7.0

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DEPARTMENT OF MICROBIOLOGY

has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012. TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
Web: www.awecare.in

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PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	T. DIVAKAR
2	University Examination Register Number	C21PG127MIB003
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph. D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy citrus canker disease by Neem oil
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	Antagonistic activity of Neem oil against Citrus canker disease was observed
10	Outcome of the Training	I know about formulation of Neem oil based disease control agent development

5/12/22
Signature of the Student
DIVAKAR. T

Signature of the Guide
(Internal)

Head of the department
DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205

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TIRUCHENGODE - 637 205.

NAME : T.DIVAKAR

ANNEXURE – I

REG NO : C21PGI27MIB003

BREIF OUTPUT OF TRAINING

Antimicrobial activity of the biocontrol agents was carried out against phytopathogen, *Xanthomonas sp*. Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems. The agents which are used for this method are called Biocontrol agents.

Neem Oil was used for this antagonistic activity against *Xanthomonas spp.* Nutrient agar was prepared and poured in the agar plates. Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which were swabbed with *Xenthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Neem Oil. The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The zone of inhibition was seen in the plates of neem oil and measured. The result given in table No1. The zone of inhibition various depends on the concentration of neem oil. There neem oil effectively control the causative agent *Xanthomonas citri.*

Table No. 1 Antimicrobial activity of the Neem oil against *Xanthomonas sp.*

Concentration	Test - 1	Test - 2	Average	pH Values
2%	15 mm	14 mm	14.5mm	7.0
4%	16 mm	22 mm	19mm	6.5
6%	19 mm	24 mm	21.5mm	6.5
8%	21 mm	27 mm	24mm	6.0

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DEPARTMENT OF MICROBIOLOGY

has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012, TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
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PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	K.SELVAGANAPATHI
2	University Examination Register Number	C2IPG127MIB009
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy, M.Sc., Ph.D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy Citrus canker disease by Neem leaf extract
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	Antagonistic activity of Neem leaf extract against Citrus canker disease was observed
10	Outcome of the Training	Design and development of Neem leaf extract based pesticide against Citrus canker.

05/12/22
Signature of the Student
K.SELVAGANAPATHI

Signature of the Guide
(Internal)

Head of the department
HEAD
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SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE

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NAME : K. SELVAGANAPATHI

ANNEXURE – I

REG NO : C21PG127MIB009

BREIF OUTPUT OF TRAINING

Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems. The agents which are used for this method are called Biocontrol agents.

Neem leaf extract was used for this antagonistic activity against *Xanthomonas spp.* Nutrient agar was prepared and poured in the agar plates . Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which was swabbed with *Xanthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Neem leaf extract. The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- There is formation of zone of inhibition in the plates of Neem leaf extract. The result given in table No1. The zone of inhibition various depends on the concentration of neem leaf extract. The neem leaf extract effectively control the causative agent *Xanthomonas citri*

Table No.1: Antimicrobial activity of the Neem leaf extract against *Xanthomonas sp.*

Concentration	Zone diameter Test - 1	Zone diameter Test - 2	Zone Average	pH Values
2%	15 mm	14 mm	14.5mm	7.0
3%	16 mm	22 mm	19mm	6.5
4%	19 mm	24 mm	21.5mm	6.5
5%	21 mm	27 mm	24mm	6.0

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has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

Nagar, Near Geethanjali School,
Erode - 638 012. TamilNadu, India.
0244753 | Cell: 98429 65753
awecare@gmail.com
awecare.in

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PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	A.SRITHAR
2	University Examination Register Number	C21PG127MIB010
3	Name of the College	Senguntha Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph.D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy citrus canker disease by Black ash.
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	Antagonistic activity of Black ash against Citrus canker disease was observed
10	Outcome of the Training	Formulation of disease control agent against Citrus canker and Test their efficiency

A. Srithar 5/12/22
Signature of the Student
A. SRITHAR.

Signature of the Guide
(Internal)

Head of the department

Principal

DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (T.N.)

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TIRUCHENGODE - 637 205.

NAME : A.SRITHAR

ANNEXURE – I

REG NO : C2IPG127MIB010

BREIF OUTPUT OF TRAINING

Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems. The agents which are used for this method are called Biocontrol agents.

Black ash was used for this antagonistic activity against *Xanthomonas spp.* Nutrient agar was prepared and poured in the agar plates . Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which was swabbed with *Xanthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Black ash .The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The zone of inhibition was seen in the plates of Black ash . The result given in table No1. The zone of inhibition various depends on the concentration of Black ash. The Black ash effectively control the causative agent *Xanthomonas citri.*

Table No.1: Antimicrobial activity of the Black ash against *Xanthomonas sp.*

Concentration	Zone diameter Test - 1	Zone diameter Test - 2	Zone Average	pH Values
2%	15 mm	14 mm	14.5mm	7.0
3%	16 mm	22 mm	19mm	6.5
4%	19 mm	24 mm	21.5mm	6.5
5%	21 mm	27 mm	24mm	6.0

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This is to certify that Mr. SRITHAR. A

DEPARTMENT OF MICROBIOLOGY

has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012. TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
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PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	S. SURESH
2	University Examination Register Number	C21PG127MIB011
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph.D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy Citrus canker disease by White ash.
8	Brief output of training (Not More Than 2 pages)	Annexure - I attached
9	Conclusion	Antagonistic activity of White ash against Citrus canker disease was observed
10	Outcome of the Training	Development of White ash based disease control agent against *Xanthomonas citri* and its effectiveness

S. Suresh 31/12/22
Signature of the Student

Signature of the Guide (Internal)

Head of the department

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DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN).

Principal

S. SURESH

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

NAME : S.SURESH

ANNEXURE – I

REG NO : C21PG127MIB011

BREIF OUTPUT OF TRAINING

Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems. The agents which are used for this method are called Biocontrol agents.

White ash was used for this antagonistic activity against *Xanthomonas spp.* Nutrient agar was prepared and poured in the agar plates . Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which was swabbed with *Xanthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Whiteash .The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The zone of inhibition was seen in the plates of White ash. The result given in table No1. The zone of inhibition various depends on the concentration of Whtie ash. The White ash effectively control the causative agent *Xanthomonas citri.*

Table No.1: Antimicrobial activity of the White ash against *Xanthomonas sp.*

Concentration	Zone diameter Test - 1	Zone diameter Test - 2	Zone Average	pH Values
2%	15 mm	14 mm	14.5mm	7.0
3%	16 mm	22 mm	19mm	6.5
4%	19 mm	24 mm	21.5mm	6.5
5%	21 mm	27 mm	24mm	6.0

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This is to certify that Mr. SURESH.S

DEPARTMENT OF MICROBIOLOGY

has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012. TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
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Since 1991

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	S. LAVANYA
2	University Examination Register Number	C21PG127MIB013
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph.D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy citrus canker disease by Normal lime.
8	Brief output of training (Not More Than 2 pages)	Annexure I attached
9	Conclusion	Antagonistic activity of Normal lime against Citrus canker disease was observed
10	Outcome of the Training	Management of Citrus canker disease by nature lime

S. Lavanya
Signature of the Student
S. LAVANYA

Signature of the Guide (Internal)
T.R. PRAKASH

Head of the Department
HEAD
DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205. (TN)

Principal

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SENGUNTHAR ARTS AND SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

Name : S.LAVANYA ANNEXURE – I

Reg.No : C21PG127MIB013

BREIF OUTPUT OF TRAINING

Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems.The agents which are used for this method are called Biocontrol agents.

Normal lime was used for this antagonistic activity against *Xanthomonas spp.*Nutrient agar was prepared and poured in the agar plates . Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which was swabbed with *Xanthomonas*culture with the different concentration of 2%, 4%, 6%, 8% of Normal lime.The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The zone of inhibition was seen in the plates of Normal lime and measured. . The result given in table No1. The zone of inhibition varicus depends on the concentration of Normal lime. The Normal lime effectively control the causative agent *Xanthomonas citri.*

Table No.1: Antimicrobial activity of the Normal lime against *Xanthomonas sp.*

Concentration	Zone diameter Test (1)	Zone diameter Test (2)	Average value	pH Values
2%	16mm	15mm	15.5	7.0
4%	16mm	20mm	18	6.5
6%	17mm	22mm	19.5	6.5
8%	18mm	24mm	21	6.0

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This is to certify that Ms. LAVANYA.S

DEPARTMENT OF MICROBIOLOGY

has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012. TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
Web: www.awecare.in

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Since 1991

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY
INTERNSHIP TRAINING REPORT

1	Name of the Candidate	N. SRISIKAA
2	University Examination Register Number	C21PGI27MIB015
3	Name of the College	Sengunthar Arts and Science College
4	Name of the Department	M.Sc Microbiology
5	Name of the institute in which for Internship Training Undergone	AWE CARE - Analytical And Research Laboratories – Erode
6	Guide/Supervisor under whom the training undertaken	Dr. E. S. Karthy M.Sc., Ph.D.,
7	Title of the training	Microbial product and design development –Formulation of control agent test the efficacy Citrus canker disease by Oyster lime .
8	Brief output of training (Not More Than 2 pages)	Annexure – I attached
9	Conclusion	Antagonistic activity of Oyster lime against Citrus canker disease was observed
10	Outcome of the Training	Design and development of Oyster lime based pesticide against Citrus canker

N. Srisikaa
Signature of the Student
N. SRISIKAA

Signature of the Guide (Internal)
T. R. PRAKASH

Head of the department
HEAD
DEPARTMENT OF MICROBIOLOGY,
SENGUNTHAR ARTS & SCIENCE COLLEGE
TIRUCHENGODE - 637 205.

Principal

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TIRUCHENGODE - 637 205.

NAME : N. SRISIKAA

ANNEXURE – I

REG NO : C21PG127MIB015

BRIEF OUTPUT OF TRAINING

Biological control is a method of plant disease management by inhibiting plant pathogens, improving plant immunity, and/or modifying the environment through the effects of beneficial microorganisms, compounds, or healthy cropping systems. The agents which are used for this method are called Biocontrol agents.

Oyster lime was used for this antagonistic activity against *Xanthomonas spp.* Nutrient agar was prepared and poured in the agar plates . Then, agar plates were swabbed with *Xanthomonas* culture . Four wells were cut down on the plates which was swabbed with *Xanthomonas* culture with the different concentration of 2%, 4%, 6%, 8% of Oyster lime .The plates were incubated at 37°C for 24 hrs. In the case of bacteria, they were observed for a zone of growth inhibition and the isolates which showed positive antimicrobial activities were selected for phenotypic and genotypic studies.

RESULT

- The zone of inhibition was seen in the plates of Oyster lime. The result given in Table No1. The zone of inhibition various depends on the concentration of Oyster lime. The Oyster lime effectively control the causative agent *Xanthomonas citri.*

Table No.1: Antimicrobial activity of the Oyster lime against *Xanthomonas sp.*

Concentration	Zone diameter Test - 1	Zone diameter Test - 2	Zone Average	pH Values
2%	09 mm	14mm	11.5mm	12.0
4%	11 mm	16 mm	13.5mm	11.5
8%	14 mm	16 mm	15mm	11.5
12%	16 mm	16mm	16mm	11.0

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has learned and Successfully Completed by the Internship Course of 'Microbial Product Design and Development' Conducted by Awe Care Private Limited, Erode from 22.07.2022 to 09.08.2022.

Dr. E.S. Karthy M.Sc., Ph.D.,
Research Director

22, Agri nagar, Near Geethanjali School,
Thindal, Erode - 638 012. TamilNadu, India.
Tel: 91 424 2244753 | Cell: 98429 65753
E-mail: awecare@gmail.com
Web: www.awecare.in

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This is to certify that Mr. S Dhanuskumar studying II- B.Sc., Microbiology, Sengunthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

Dr. E. S. KARTHY
Research Director

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This is to certify that Mr. R Dineshkumar studying II- B.Sc., Microbiology, Senguntbar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

Dr. E. S. KARTHY
Research Director

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Dr. E. S. KARTHY
Research Director

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Research Director

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This is to certify that Ms. M Deepak studying II- B.Sc., Microbiology, Sengunthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

Dr. E. S. KARTHY
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This is to certify that Ms. M Tamilselvi studying II- B.Sc., Microbiology, Senguthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

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Research Director

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This is to certify that Ms. S Yogalakshmi studying II- B.Sc., Microbiology, Sengunthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

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Research Director

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This is to certify that Mr. S Dilip studying I - M.Sc., Microbiology, Sengunthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

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Dr. E. S. KARTHY
Research Director

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This is to certify that Mr. T Divakar studying I - **M.Sc.,** Microbiology, Sengunthar Arts and Science College, Tiruchengode, Namakkal Dt, Tamilnadu, have completed internship training programme on Microbial and Molecular Techniques from **22.07.2022 to 09.08.2022** held at AWE CARE PVT LTD, ANALYTICAL AND RESEARCH LABORATORIES, Erode, Tamilnadu.

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Dr. E. S. KARTHY
Research Director

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ExtrOMind Technologies

2/358, Murugan Plaza,
Syndicate Bank Upstairs,
Salem Main Road, Tiruchengode,
Tamilnadu, India-637 211.
Phone : +91-4288 284 868
Mobile : +91-9650 284 868
E-Mail : info@extromind.com
Web : www.extromind.com

Feb 11, 2022

To

The Principal,

Sengunthar Arts and Science College,

Salem road, Tiruchengode-637 205

Dear Sir,

This is to certify that the following students studying of I MCA & I M.Sc (Computer Science) have completed their Software Development Training program held on 07.02.2022 to 11.02.2022 during the academic year 2021-2022

1. T.N.Baalaji - 20PCA1038
2. R.Dharnesh -20PCA1039
3. M.Revathi -20PCS1177

For ExtrOMind Technologies

CEO & Managing Director

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PBS TECHNOLGY SOLUTIONS
Pollachi Main Rd. SIDCO Post,
Malumichampatti,Coimbatore, Tamil Nadu

Feb 11, 2022

To

The Principal,
Sengunthar Arts and Science College,
Salem road, Tiruchengode-637 205

Dear Sir,

This is to certify that the following students studying of I MCA have completed their Software Development Training program held on 07.02.2022 to 11.02.2022 during the academic year 2021-2022

1. S.Rakesh - 20PCA1040
2. K.Selvamani -20PCA1041

PBS TECHNOLOGY SOLUTIONS

Mrs. Sreena Sukumaran Kavil Padath
Director

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PBS TECHNOLGY SOLUTIONS
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Malumichampatti,
Coimbatore, Tamil Nadu-641 050

3.5 Collaboration

3.5.1 The number of MoUs, collaborations/linkages for Faculty exchange, Student exchange, Internship, Field trip, On-the- job training, research and other academic activities during the Academic year 2021-2022

S.NO	PAPER TITLE	AUTHOR	COLLABORATIVE AUTHOR	PAGE NO
1.	Enhanced LDA based input selection towards the sentimental analysis	Dr.J.K.Kanimozhi, Department of Computer Science, Sengunthar Arts and Science College, Tiruchengode	C. Suresh Kumar, Department of Computer Science, Cheran Arts & Science College, Kangeyam	1
2.	Investigation of Opportunistic routing in wireless Ad-Hoc networks using distributed adaptive Opportunistic routing with artificial Fish-Swarm alogrithm	P. Balamurugan Department of Computer Science, Sengunthar Arts and Science College, Tiruchengode	S. Dhanalakshmi, PG and Research Department of Computer Science, Vivekanandha College of Arts and Science for Women (Autonomous), Tiruchengode	2
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ENHANCED LDA BASED INPUT SELECTION TOWARDS THE SENTIMENTAL ANALYSIS

[1]C. Suresh Kumar, [2]Dr.J.K. Kanimozhi, [3]Dr. S. Prema

[1]Assistant Professor, Department of Computer Science, Cheran Arts Science College, Kangeyam

[2]Assistant Professor, P.G. Department of Computer Science, Sengunthar Arts & Science College,Tiruchengode

[3]Assistant Professor,Department of Computer Science (P.G.),K.S.Rangasamy College of Arts & Science (Autonomous), Tiruchengode

Abstract

Big data creates considerable challenges for businesses due to its complexity. The fundamental challenge that firms face is processing and storing large amounts of data. In addition, strategies for dealing with a befuddling amount of raw data in various forms must be enhanced. It is also vital to develop scalable data storage in order to efficiently acquire and retrieve critical information. The importance of feature selection in today's society cannot be overstated. Feature selection is one of the most important factors that can affect classification accuracy. If the dataset has a large number of characteristics, the space will be huge and congested, reducing the classification accuracy rate. It is possible to employ a method that is both efficient and reliable for removing noisy, irrelevant, and redundant data. Then it's just a matter of determining what sentimental analysis entails. Single words from a text document can be utilized as features, or more complex pairings can be retrieved using a variety of approaches that add more information to the feature-document matrix representation. The huge number of properties and relationships that diverse feature types hold, however, causes the high dimensionality problem. As a result, feature selection helps to build effective and efficient sentiment analysis applications by selecting relevant and informative features to enhance classifier performance while reducing processing load. In this work, Enhanced LDA-based feature selection has been applied. LDA is one of the generative statistical models. In basic, the Latent semantic analysis has been the most widely used distributive model with the singular value decomposition. LDA is utilized for removing points from text that empower effective preparing, particularly for huge information analysis

Keywords: sentiment analysis, LDA, NLP, KNN, SVM, NB

INTRODUCTION

Fundamentally, Sentiment Analysis (S.A.) is the examination of the emotions (for example, feelings, perspectives, assessments, musings, and so on) behind the words by utilizing Natural Language Processing (NLP) apparatuses. In case you're not mindful of what NLP apparatuses do – it's practically all in the name. Regular Language Processing basically expects to comprehend and make a characteristic language by utilizing fundamental devices and

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Investigation of Opportunistic Routing in Wireless Ad-Hoc Networks Using Distributed Adaptive Opportunistic Routing with Artificial Fish-Swarm Algorithm

P.Balamurugan[1], Dr.S.Dhanalakshmi[2],
[1]Research Scholar, PG and Research Department of Computer Science, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode,India.
[2]Professor, PG and Research Department of Computer Science, Vivekanandha College of Arts and Science for Women (Autonomous), Tiruchengode,India.

Abstract: Opportunistic routing has long been proposed to overcome the lack of traditional routing in wireless ad-hoc networks. Opportunistic routing mitigates the impact of defective wireless links by using the broadcast element of wireless signals and path diversity. Opportunistic routing decisions, on the other hand, are made in real time and involve selecting the next relay based on actual transmission results and a rank ordering of nearby nodes. The novel opportunistic algorithms proposed in are based on a probabilistic model of wireless connections and the surrounding topology of the network. MANET will further develop the organization's data transmission trustworthiness while decreasing idleness. The heuristics in would turn into another instance of steering in an organization with deterministic channels and no beneficiary variety if network clog and henceforth idleness, were to be altered via time-invariant characteristics. In this paper, the ExOR, d-AdaptOR, Firefly(FF), Artificial Fish Swarm(AFS), Distributed Adaptive Opportunistic Routing with Firefly (DAOR-FF), Distributed Adaptive Opportunistic Routing with Artificial Fish-Swarm (DAOR-AFS) Algorithms is compared and analyzed, and then it selects shortest route for transferring the packets of information from transmitter node to the receiver node for extend the transmission reliability of sensor networks, existence time of the throughput network, and decrease the delay. Here, the experimental end result illustrated and in contrast with the present method the hybrid algorithms offers higher result.

Keywords: Opportunistic Routing, ExOR, d-AdaptOR, Firefly(FF), Artificial Fish Swarm(AFS), Distributed Adaptive Opportunistic Routing with Firefly (DAOR-FF), Distributed Adaptive Opportunistic Routing with Artificial Fish-Swarm (DAOR-AFS)

I.INTRODUCTION

Opportunistic Routing (OR) addresses a promising response to utilize the transmission idea of remote discussion links.Opportunistic information by which stacks of info are treated in a multi-bounce remote network. Dissimilar to conventional IP sending, which requires a delegate hub to look into a sending table for a particular next jump, pioneering information sending permits various downstream hubs to follow up on a transmission information bundle. Sharp steering has been displayed to further develop network throughput by permitting hubs that catch transmissions and see

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Juvenile Innovative Entrepreneurs: Challenges Pave A Path to Opportunities

DR.D. LEELAVATHI[1], DR REVATHI M[2], DR.R. INDUMATHY[3], DR.S RAMACHANDRAN[4], K. SARAVANAN[5], DR. K. BHAVANA RAJ[6]

[1]Assistant Professor, Department of Commerce Guru Nanak College (Autonomous), velachery, Chennai, Tamilnadu
[2]Head & Assistant Professor Department of Commerce, Sengunthar Arts and Science College, Tiruchengode, Namakkal-Dt, Tamilnadu
[3]Assistant Professor Department of Management Studies Dr.N.G.P. Institute of Technology Coimbatore
[4]Associate Professor, Department of Management studies, St.Peters Institute of Higher Education and Research, Chennai, Tamilnadu
[5]Assistant professor, department of commerce, St. Joseph College (Autonomous), Tiruchirappalli
[6]Assistant Professor, Department of Management Studies, Institute of Public Enterprise, Hyderabad
Email: leelavathi.d@gurunanakcollege.edu.in[1], Revathi@sengarts.co.in[2], indumathykumar@gmail.com[3], drsramphd@gmail.com[4], saravanakumar@yahoo.in[5], bhavana_raj_83@yahoo.com[6]

Abstract: Introduction: Young entrepreneurs loving to sharpen up their business skills and their business challenges pave a way to innovative ideas in business domain. It leads to develop a positive outlook among juvenile innovative entrepreneurs to utilize it as an opportunity. All effective innovations are breathtakingly. Youth entrepreneurship has becoming a vital factor in ensuring a brighter future for the nation. Entrepreneurship attitude leads to innovation is seen as not only the solution to unemployment but also fundamental in nurturing young people to unleash their potential to the fullest.
Objectives: To emphasize the opportunities and challenges of budding entrepreneurs in the college students; and to identify the strategies of online free enterprises with nominal investment in Chennai City.
Methods: Structured questionnaire package that inquired information including Gender, Age, Education level, Source of Parental Income, daily time spent for business and challenges leads to innovative business opportunities among young entrepreneurs. Likert's five-point scale is developed to test the juvenile innovative entrepreneurs' attitudes with percentage analysis and Chi-Square, KMO coefficient and the Bartlett's test of with sixty samples for the research.
Result: There is no significant relationship between "Challenges and Opportunities of Young innovative entrepreneurs. On the difference, the null hypothesis is accepted and shows that the there is significant relationship between "Challenges and Opportunities of Young innovative entrepreneurs during their business passion.
Conclusion: The study assessed that young innovative entrepreneurs are using technology as a vast weapon to encounter the challenges faced while playing entrepreneurial role in the modern business world. "More significant walk has to be taken by young innovative entrepreneurs to steady economic revolution and cost-effective business strategy in the modern epoch."
Keywords: Juvenile, Entrepreneur, Challenges, Opportunities, and Innovative

INTRODUCTION

Entrepreneurship tends to be an interesting idea at first glance; nevertheless, the journey to become an entrepreneur is not for all. On the road, one must overcome several obstacles and challenges. Given these hurdles, many founders lack advice and assistance, as well as uncertainty over how to begin the process of creating a company. This is where the benefit of incubators and accelerators comes into effect. These programmers' advisers assist aspiring founders in developing their business plans and turning them into practice. Incubators and accelerators will help you organize your ideas and prepare the next steps from the very beginning of your entrepreneurship path. Essentially, these acceleration initiatives assist ambitious entrepreneurs in advancing to the next step of growth. Accelerators/incubators assist in every phase of the journey, from helping to launch the startup to raising funds for the company. Startup India is the government of India's flagship project, with the aim of developing a strong ecosystem that promotes the development of small companies, resulting in long-term economic growth and large-scale job formation. Via this programme, the government intends to encourage entrepreneurs to expand through creativity and design. In addition, a Startup

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Autonomous Transaction Model for E-Commerce Management Using Blockchain Technology

Indra S., Sengunthar Arts and Science College, India

Annamalai Solayappan, Sri Subramaniya Swamy Government Arts College, India

Srinath J., Vivekanandha Institute of Information and Management Studies, India

S. Raja, SRM Valliammai Engineering College, India

https://orcid.org/0000-0002-0727-4798

Durga S., KLEF, K. L. University, India

Poongodi Manoharan, Division of Information and Computing Technology, College of Science and Engineering, Hamad Bin Khalifa University, Doha, Qatar*

https://orcid.org/0000-0001-6801-6138

Mounir Hamdi, Division of Information and Computing Technology, College of Science and Engineering, Hamad Bin Khalifa University, Doha, Qatar

Godwin Brown Tunze, Mbeya University of Science and Technology, Tanzania

https://orcid.org/0000-0002-7991-8962

ABSTRACT

A blockchain is an advanced technology that can power over a decentralized network. The authors bring it up to design the autonomous transaction system for e-commerce applications; because of the dramatic increase in IoT devices, communication between physical things is enabled. This brings more efficiency and accuracy, which benefits the outsiders while human interaction reduces. There is a big challenge in data storage after payment in the e-commerce application. Blockchain presents an appropriate platform for the distributed data storage; it also protects the data from outsiders. The authors create blocks that check and record each transaction that took place in the e-commerce application. Blockchain is going to protect the user's privacy from outsiders/banks that are being violated. The authors deliver this research in this paper in terms of the method with detailed design and full implementation. The system captures the user data, processes it, and gives a visual representation of the processed data.

KEYWORDS

Autonomous, Blockchain, E-Commerce, Management, Transaction Model

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*Corresponding Author

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THE IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION TOWARDS STAR HOTELS IN TAMILNADU

S.SEKAR [1], Dr.B.SUDHA[2]

[1]Ph.D Research Scholar of Commerce, Periyar University Constituent College of Arts and Science, Pappireddipatti, Dharmapuri-Dt,Tamilnadu,India

[2]Assistant Professor and Research Supervisor, Department of Commerce, Periyar University Constituent College of Arts and Science, Pappireddipatti, Dharmapuri-Dt,Tamilnadu,India

ABSTRACT: - The interaction among customers' satisfaction is the level of product. It is a deep required to stay a member of a particular hospitality sector and we retain (as well as) exert elevated amounts of effect in account of a Resin hotel. It is also defined as an underlying mental connection to the hospitality sector. The study is primarily focused on customer loyalty and the quality of products or services of quality dimension. For the service industry, quality of service is a big problem. The aim of the work is to discover out the variables which differ between the participants' demographic factors and independent factors. The doctors collected the variable, selected on both secondary sources. By focusing on front office workers only this study identifies variables of service quality and analyzed the expectations and awareness levels of such services of a customer. The effects of this quantitative assessment of the quality of service can provide some insights on how consumers rate the quality of service and evaluate the satisfaction of customers. The research implies that service efficiency plays a significant role as a catalyst for increased customer satisfaction of hotel service. Supervisors should concentrate on compassion, flexibility, responsiveness and reliability to achieve a customer satisfaction that contributes to customer satisfaction and business benefit.

Key words: customer satisfaction, hotel, service quality, customer perception.

INTRODUCTION

Consistency has attracted the attention of practitioners and scholars throughout the years, but mainly in the manufacturing sector at the first level. However, since well before the 1980s, the concept of hospitality for company performance in the service industry was also widely accepted in the literature because of the effect on different aspects of business quality. In order to research quality of service, several evaluation frameworks were created, such as Option of Time Methodology and Functional.It is important for an organisation to clearly identify the service quality requirements of all its customers in order to be able to develop processes to enhance or maintain the level of service they offer to their customers. The investigators examined in this paper if service quality has an effect on the credibility of a hotel, namely Mumbai's Palms hotel.

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Research Study on Factors and Strategies to Impart Employability Skills of College students in Tamil Nadu

Dr.M.Sakthivel Murugan [1], S.Sekar [2], Dr.T.Sujatha [3], Dr. M. Anbuselvi [4]

[1]Professor In-charge, D.B.Jain College, Chennai – 600097.Email: profmsm57@gmail.com

[2]Assistant Professor of Commerce (CA), Sengunthar Arts and Science College, Tiruchengode, Namakkal.Email: commercesekar@gmail.com

[3]Department of Accounting and Finance,Associate Professor, SIVET College, Gowrivakkam, Chennai-600073.Email: sujathajeevi@gmail.com

[4]Assistant Professor of Commerce, Adhiyaman Arts and Science College for Women Uthangarai, Krishnagiri.Email: kabianbu28@gmail.com

Abstract

Employability skills are essential for acquiring and pursuing goals of college students for their employment in the corporate sector. Educational institutions with the help of their teachers make all out effort to impart knowledge of employability. This study is aimed at factors and strategies which are vital for students employability in the Indian corporate sector.

Keywords Employability skills, Communication skills, Employability skills, factors, Employability skill strategies.

Introduction

The present younger generation in India is forming part of Human capital of India. Younger generation is a human capital means they have an important contributory factor to the nation. Educational institutions in India especially in arts and science colleges not only impart basic curriculum knowledge of subject but also they have to impart employability skill knowledge of students. In order to design and develop and mould the students to impart employability skills only with the help of strategies required and expected by corporate houses. In this direction, this study attempts to focus on factors influencing development of employability skills and also strategies adopted by the arts and science colleges to mould the employability skills for their college students.

Employability skills for corporate sector employability

World Bank document indicates that Indian education system to be flexible nature such as basic educational learning, secondary educational capabilities of developing technical core skills and

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Customer Satisfaction Towards Five Star Hotel Services In Tamil Nadu

S. SEKAR[1] & Dr.B.SUDHA[2]

[1]Ph.D Research Scholar of Commerce, Periyar University Constituent College of Arts and Science, Pappireddipatti, Dharmapuri-Dt

[2]Assistant Professor and Research Supervisor, Department of Commerce, Periyar University Constituent College of Arts and Science, Pappireddipatti, Dharmapuri-Dt.

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Abstract

Customer satisfaction is described as a measure of how pleased customers are with a star hotel, facilities and experiences. Details on customer loyalty, including polls and reviews, will help an organization decide how its goods and services best enhance or alter. Study goals to analyze the degree of satisfaction with services offered by Coimbatore District hotels. Research methodology: Ten hotels represented the research community of 10 owners/managers, from whom 150 consumers were given licenses to visit their customers, to determine the extent of execution of the composite marketing activities. The client was only responsible for the consumers to be checked in the hotel's during the data collection era. Results of the analysis show that factor-1 coefficients have strong absolute correlations with the component. Hence to the assistants, Assistants procedure, Reception Fees and Assistants Operation [illegible] 0.951, 0.905, 0.907, 0.902 etc. This research was suggested, the attention paid to selecting beautiful interior design might upgrade the image of the hotel environment and encourage an overall tone to be decided for a successful atmosphere. Lighting is often a very critical issue that can create an atmosphere or destroy it rather than the other part of the style. It is also advised that hotels create upward lights to ensure the hotel softer and more welcoming. Please end this review; The study would concentrate on hotel industry facilities in Coimbatore, the service marketing combination and consumer loyalty in the Coimbatore Area. The research focuses on the facets of consumer loyalty of 10 chosen hotels.

Keywords: Customer satisfaction, parking facilities and Room facilities

Introduction

A Five Star Hotel is designed to take guests to the most important standard into account. Anything from outside the inn to the flowers should therefore be of brilliant standard and very careful. Helpers should be well trained and attention should be given to providing the guest with the most ideal experience. Excellent standards of constructive assistance and customer service are important. Workers employed at the food outlets can demonstrate astonishing amounts of awareness and management of food, drink and wine items. The menu can include a wide range of dishes of extraordinary consistency, which are shown in perfect menus.

Both channels should have levels of very cohesive and dedicated groups with a depth in management. This allows them to deliver forms of support that meet the benchmark. For eg, valet steps, rooms escorts, constructive bar table support and relax and breakfast facilities, 24-hour meetings, room administration, complete evening tea.

On order, space access is transmitted and cleaned in a highly skilled and effective way. The scale and format of the premises provide for a transport approach that guarantees the best room service experience. The critical hotel's number of rooms is exceptionally large, enabling freedom to create, console, eat and relax. Beds and headboards are superbly uniform. Roomy, rich and diverse workplaces with lamines and refined brands such as unique hand towels, excellent toiletries and frills, continually overhauled all day long. The inn could have additional offices with additional food, recreation, business concentrate, spa, etc. The entire office is remembered by travelers for prices and customized

Correspondence Author
S. SEKAR, Ph.D Research Scholar of Commerce, Periyar University Constituent College of Arts and Science, Pappireddipatti, Dharmapuri-D

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A STUDY ON ACCEPTABILITY OF SOCIAL MEDIA NETWORKING SITES AMONG WOMEN

Dr Somanchi Hari Krishna,
Associate Professor, Department of Business Management,
Vignana Bharathi Institute of Technology, Aushapur Village,
Ghatkesar Mandal, Medchal Malkangiri Dist-501301, Telangana

Dr. Saba Anees,
Assistant Professor, Al-Barkaat Institute of Education,
Aligarh 202122 (U.P.) India
A NAAC Accredited Minority Institute,
Affiliated to Dr. Bhim Rao Ambedkar University, Agra- U.P. (A State University)

Dr. Rajesh. P. Jawajala,
Associate Professor (Strategic Marketing & IB),
School of Management (SOM - PG), MIT World Peace University (MIT-WPU),
Kothrud Campus, Pune, Maharashtra (India) 411021

Dr.M.Bhuvaneswari,
Professor, Department of Management Sciences,
Hindusthan College of Engineering and Technology, Coimbatore.

S.Sekar,
Assistant Professor of Commerce (CA),
Senguntha Arts and Science College, Tiruchengode,
Namakkal Dt,Tamilnadu

Dr.N.Sujatha,
Vice principal & Head, M.Com G & B.Com CS,
Shree ChandraPrabhu Jain college, Minjur 601203

ABSTRACT

Social Media networks offer a straightforward way to converse with peers and get feedback as well which may influence a young adult's self-esteem and examines how social media affects college students' communication with others and their levels of engagement and connectedness as well their effects and impacts on their social life, privacy, emotional health and education. Media is established as an efficient technique to create beneficial communication procedure. However, the media consumers have not known the usage of the technology well. The rise of New Media resulting in convergence is playing havoc in the emerging environment. Social Media has been a venue to express opinions and sentiments which is exclusive to a group of people. The objectives of the study are to study the frequency of using the social media networks by the women users, to identify the favorite social media network among the women users, to analyze the reason for using the social media by the women and to know the women users' opinion about their freedom in using the social media. The study has been carried out in Chennai City during the month of March 2022. For which purposive sampling technique has been applied. The women social media users are taken purposively to understand their attitude towards social media networks are purposively considered as samples. 400 sample respondents are selected and their acceptability of the social media networks are analyzed.

Keywords: *Social Media Networking Sites, Women and Chennai City*

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A STUDY ON INFLUENCE OF LEADERSHIP STYLE AND JOB SATISFACTION ON JOB PERFORMANCE

Dr. A. Narasima Venkatesh[1], Dr. V Jagmesh[2], Dr. S. Jyothirmaye Reddy[3], B. Datha Sai Ravi Teja Reddy[4], Dr.Kochi Kusheed Khan S[5], S.Selvi[6]

1. Professor and Head of The Department, HRM and General Management, ISBR Business School, Bangalore Karnataka,India.
2. Professor, Department of Mechanical Engineering, Bharath Institute of Higher Education and Research, 173,Agaram Road, Selaiyur, Tambaram, Chennai-600073.
3. Associate Professor, Faculty of Management Studies, Marwadi University, Morbi Road, Rajkot-360003, Gujarat.
4. Student, Department of Management Studies, Annamalai University, Chidambaram,Tamil Nadu.
5. Assistant Professor, School of Commerce & Management Studies,Dayananda Sagar University.
6. Assistant Professor of Commerce (CA), Sengunthar Arts and Science College, Tiruchengode, Namakkal-Dt, Tamilnadu, India.

Abstract

In any organization, leadership is a critical process. We relate an organization's success or failure to its leadership. When a corporate endeavor, a university, or a sports team succeeds, the president or coach is frequently credited; when a venture fails, the same people at the top is frequently removed. Thus, one of the primary concerns of every organization is how to recruit, develop, and retain good leaders. The goal of this study was to study the socio-economic characteristics of the sample respondents and to measure the impact of leadership style and job satisfaction on the job performance. Primary data was gathered primarily through the use of survey questionnaire (google form). The sample method used for the study was simple random technique. The selected sample (200) represented a balanced mix of various demographic factors Gender, age, income and level of experience. The article opens with a discussion of how culture is conceptualized at the human level, as well as leadership styles and their influence on work satisfaction. The study concluded that the leadership style and job satisfaction of the employees are influencing their performance.

Keywords

Leadership Styles, Job Satisfaction and Job Performance.

1. Introduction

Effective leadership and employee job satisfaction have long been seen as critical aspects in determining an organization's success. A capable leader sets the direction for the company and guides followers toward accomplishing the organization's objectives. Similarly, people who are satisfied with their jobs are more willing to put in extra effort and pursue corporate goals. A company that generates high levels of employee satisfaction is also more capable of maintaining and recruiting people with the necessary capabilities. (Mosadegh Rad, 2006). Raelin (2011) Leadership is inextricably linked to people-oriented actions. The most impactful leaders are those who have a favourable correlation between work happiness and performance[1]. Employee views of their occupations are a critical component of job satisfaction measurement; these

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