



Dr. J. Tharani

OBJECTIVE

To use my expertise in Microbiology to contribute to the growth and success of the organization by identifying and developing innovative solutions to emerging microbiology challenges.

CONTACT

+91 9894749971

jtharani24@gmail.com

tharanibm@nct.ac.in



https://scholar.google.com/citations?view_op=new_profile&hl=en



<https://orcid.org/my-orcid?orcid=0000-0002-9567-0925>



<https://www.researchgate.net/profile/J-Tharani>

QUALIFICATIONS



RESEARCH ACTIVITIES

Ph.D. Research title

“Antibacterial and Anticancer activity of Biogenic Palladium Nanoparticles synthesized by Secondary Metabolites of Marine Bacteria against Lung Cancer Cells”.



DEMOGRAPHIC PROFILE

Date of Birth : 24th July, 1997
Gender : Female
Father's name : A. Jayakumar
Mother's name : T. Roja
Father's Occupation : Retired (Senior Sheristadar)
Mother's Occupation : Head Mister
Marital Status : Single
Languages Known : Tamil, English
Nationality : Indian
Address : No 36,A/4
Kottaimedu Street,
Siruvangur Road,
Kallakurichi
Kallakurichi Taluk
& District
Tamilnadu, India-
606213

Summary of Ph.D. Research:

Marine microorganisms are a vital resource for discovering and developing new physiologically active compounds due to their vast genetic ability to manufacture different secondary metabolites and vast genetic diversity. An alternative to currently available medications for the treatment of infectious diseases and cancer may be the use of these secondary metabolites in the creation of nanoparticles. New antibiotic-producing bacterial strains were obtained from marine soil samples, and their secondary metabolites were employed to manufacture palladium nanoparticles for this study. We also hoped to evaluate the drug's antibacterial and anticancer effects on lung cancer cells and other infections often seen in the respiratory tract.

The cubical-shaped crystalline palladium nanoparticle was extracellularly synthesized from secondary metabolites of novel antibiotic-producing marine bacteria *Falsibacillus pallidus* TCP4 and *Bacillus marisflavi* CH 1. The obtained results indicate that the biosynthesized palladium nanoparticles have effective antibacterial, antibiofilm, and oxidant activity. Moreover, biosynthesized palladium nanoparticles effectively induced apoptosis in lung cancer A549 cells, as evidenced by the increased Lipid peroxidation and reduced antioxidant activity in A549 cells. It was revealed that the biosynthesized palladium nanoparticles induced apoptosis in A549 cells by inducing reactive oxygen species (ROS), reduced mitochondrial membrane potential, and inducing apoptotic morphological changes. The bioactive molecules in the metabolic extract showed a good binding affinity with the receptor proteins of *Haemophilus influenzae*. Therefore, the novel antibiotic-producing marine bacteria *Falsibacillus pallidus* TCP4 and *Bacillus marisflavi* CH I could be used in the preparation of biocompatible nanomaterials for the effective application of the treatment of respiratory tract infection and lung cancer.

M.Sc. Research title : “Evaluation of Antimicrobial Activities of Essential oils against Pathogenic Microorganisms”



PROFESSIONAL EXPERIENCE:

Designation : Assistant Professor
Duration :19.06.2023 to present
Name of Institution : Department of Biotechnology and Microbiology, National College-Tiruchirappalli
Reference : Dr. Mohamed Jaabir
Associate Professor &
Head Coordinator
Contact: 9786425226
mohamedjaabir@nct.ac.in



RESEARCH PUBLICATIONS

AREAS OF INTEREST

- ❖ Antimicrobial activity.
- ❖ *In vitro* anti-cancer studies.
- ❖ Biofilm.
- ❖ Isolation of Microorganism.
- ❖ Extraction of Metabolites.
- ❖ RT-PCR
- ❖ Biogenic Nanoparticle synthesis.



SCIENTIFIC SKILLS

- ❖ Expertise in Microbial diversity exploration.
- ❖ Experienced in biogenic nanoparticles preparation and characterization.
- ❖ Experienced in Environmental sampling and monitoring techniques.
- ❖ Experienced in Antimicrobial and drug discovery studies.
- ❖ Experienced in plant phytochemical analyses and molecular docking studies.
- ❖ Experienced in soil quality management.

1. U. Nisha Gopika , **J.Tharani**, D. Sangeetha*Antibacterial Activity of Syzygium Cumini and Phyllanthus Acidus Seed Extract against Clinical Pathogens, International Journal of Pharmaceutical and Biological Science Archive, Volume 10 Issue 5; September-October; 2022; Page No. 28-33.
2. Janagakumar, *Sangeetha. D., **Tharani. J.** And Ishwarya R. "Antibacterial Activity Of Punica Granatum And Vitis Vinifera Against Urinary Tract Infection, International Journal Of Science Academic Research Vol. 03, Issue 05, Pp.3872-3876, May, 2022.
3. Sangeetha. D *, **Tharani. J¹**, Ishwarya. R²,Geetha M And Sivasankari .C "Identification Of Cellulolytic Bacteria From The Soil And Screening of Its Enzymatic Activity" International Journal Of Current Pharmaceutical Review And Research 2022;14(3);01-08.
4. K. Nandhini¹ , **J. Tharani²** , D. Sangeetha*, Screening of Antibacterial Activity of Cissus Quadrangularis and Boerhavia diffusa against Clinical Pathogens, International Journal of Science and Research (IJSR) ISSN: 2319-7064 SJIF (2022): 7.942.
5. R. Ishwarya, D. Sangeetha*, **J. Tharani**, P. Ramya and M. Geetha, Comparative studies on the antibacterial efficacy of clove and cinnamon extracts against clinical isolates, Int. J. Adv. Res. Biol. Sci. (2022). 9(3): 129-137.
6. D.Sangeetha*,**J.Tharani¹**,R.Ishwarya², P.Ramya³ "Isolation and Screening of Marine Bacterial Isolates Against Clinical Pathogens,"International Journal of current Pharmaceutical Research May (2022) DOI: [10.22159/ijcpr.2022v14i3.1987](https://doi.org/10.22159/ijcpr.2022v14i3.1987).
7. Madhanganes¹ , Sangeetha D*² , **Tharani J³** & Ishwarya R⁴, Biodegradation of Crude Oil By Using *Saccharomyces cerevisiae* Isolated From Palm Wine, International Journal of Creative Research Thoughts (IJCRT),10(7);2022.
8. Devendiran ,R. Ishwarya , **J. Tharani** and D. Sangeetha, Studies On The Utilization of Groundnut Oil Cakes For Lipase Enzyme Production Using *Bacillus subtilis*, International Journal of Scientific Research 11(9);2022
9. Subham Prasad Beher¹ ,Sangeetha Dayalan*,**J. Tharani²** ,Ishwarya Rajendran³ "Prevalence of *Escherichia coli* in Raw Cow's Milk in Cuddalore District,"International Journal of Current Microbiology and Applied Sciences 11(4)286-294, DOI: [10.20546/ijcmas.2022.1104.037](https://doi.org/10.20546/ijcmas.2022.1104.037).
10. Sangeetha. D *, **Tharani. J¹**, Ishwarya. R² "Isolation And Identification Of Micro Organism From Pond Water And Its Antibacterial Efficacy Against Moringa Olifera," Indo American Journal of Pharmaceutical Sciences 09(3),171-180.
11. Jubilant Synnah, **J.Tharani**, R.Ishwarya, D.Sangeetha "Antibacterial, Antioxidant and Phytochemical Screening of Essential Oil" , International Journal of Pharmaceutical & Biological Archives 2022 13(4):1-8.
12. Debasish Nayak, **Tharani Jayakumar**, Geetha Mani and Sangeetha Dhayalan. "Screening for phytochemical and antibacterial activity of leaves of Mimosa Pudica L. and Lippia Abysinica against urinary tract infection causing pathogen" Science Archives 4(1)1-6.
13. Rajendran Ishwarya, **Jayakumar Tharani**, Mani Geetha, Dhayalan Sangeetha * Marine Bacterial Pigments and Nanoparticles Synthesis -An Overview" International Journal of Current Microbiology and Applied Sciences,11(11)2022,178-186.

TECHNICAL SKILLS

- ❖ Experienced in microbial sampling and culturing techniques.
- ❖ Experienced in Microbial diversity exploration.
- ❖ Preparation and testing of microbial metabolites.
- ❖ Experienced in antibiofilm.
- ❖ Microbial bioassay
- ❖ Experienced in Microscopic techniques, Flow cytometry.
- ❖ Trained in animal handling.
- ❖ Analysis of microbial samples for biochemical parameters and biophysical characterization.
- ❖ Experienced in DNA extraction, RT-PCR amplification.

BOOK PUBLISHED

Tharani J and Ishwarya R.
Microbial Nanoparticles.Recent
Research in Microbiology,Thanj
International Publishing.2022.

WEB OF SCIENCE PUBLICATIONS

14. **Tharani Jayakumar**, Ishwarya Rajendran, Geetha Mani, Sangeetha Dhayalan* “Antibacterial, antibiofilm and antioxidant activity of secondary metabolites of antagonistic bacterial strain *Bacillus endophyticus* PK2 isolated from marine soil”
15. **J.Tharani** , R.Ishwarya,M.Geetha And Sangeetha. D * , “Secondary Metabolites Of Antagonistic Bacterial Strain *Cytobacillus firmus* Tcp1 Exert Antibacterial And Anticancer Activity Against Lung Cancer A549 Cells” Uttar Pradesh Journal Of Zoology 43(19): 28-35, 2022 ISSN: 0256-971X (P)WOS.
16. Ishwarya Rajendran, **Tharani Jayakumar**, Geetha Mani, Sangeetha Dhayalan*, Antibiofilm And In Vitro Cytotoxic Activity of Pigment Extracted From Marine Bacteria *Kocuria flava* (AP2), Uttar Pradesh Journal Of Zoology,43(21):32-39,2022 ISSN : 0256-971X (P).
17. **J.Tharani**¹,R.Ishwarya²,M.Geetha And Sangeetha. D * “Nanoparticles Synthesis from Marine Bacteria and Its Applications – An Overview” Indian Journal of Natural Sciences 13(75) 2022 ISSN :0976-0997.
18. M. Geetha, R. Ishwarya, **J. Tharani** and D. Sangeetha, “Common Reservoirs of Pathogens and Its Types Causing Nosocomial Infection”. ” Indian Journal of Natural Sciences 13(75) 2022 ISSN :0976-0997.
19. R.Ishwarya, **J. Tharani** , M. Geetha and D. Sangeetha,“Isolation, Identification and Antibacterial Activity of Pigmented Bacteria Isolated from Marine Soil” Indian Journal of Natural Sciences 13(76) 2023 ISSN :0976-0997.
20. Geetha Mani, Ishwarya Rajendran, **Tharani Jayakumar** and Sangeetha Dhayalan,” Prevalence and Detection of Multidrug Resistance Bacterial Strains Isolated from the Different Inanimate Surfaces of the Hospital Environment” Uttar Pradesh Journal of Zoology Volume 44, Issue 2, Page 95-104, 2023; Article no.UPJOZ.2423 ISSN: 0256-971X (P).
21. Deviga, **J.Tharani**, R.Ishwarya, M.Geetha and D.Sangeetha*.” Studies on The Optimization of Protease Production by Thermophilic *Bacillus subtilis* Isolated from Raw Milk Sample” Bulletin of Environment, Pharmacology and Life Sciences 12(1) December 2022 91-98.
22. Dhayalan, S. Mani, G. **Jayakumar**, T.,(2023). In vitro and molecular identification of Biofilm producing multidrug resistant nosocomial isolates from the surfaces of hospital environment. *Indian J. Applied & Pure Bio. Vol, 38*(3), 1453-1463.

SCI JOURNAL PUBLICATIONS

23. **Jayakumar, Tharani.**, Mani, Geetha., Dhayalan, Sangeetha. *et al.* Characterization, Antimicrobial and Anticancer Properties of Palladium Nanoparticles Biosynthesized Routed Through *Bacillus sp.* *J Clust Sci* (2023). <https://doi.org/10.1007/s10876-023-02435-6>.
24. Mani, G., Rajendran, I., **Jayakumar, T.**, Mani, A., Govindaraju, R., & Dhayalan, S. (2023). Evaluation of antibiofilm and anti-quorum sensing activities of fucoidan characterized from *Padina boryana* against nosocomial pathogens. *Applied Biochemistry and Biotechnology*, 1-18.

BIOINFORMATICS

- ❖ Molecular characterization.
- ❖ Primer designing.
- ❖ Analysis of phylogenetic relationship.
- ❖ Docking studies.

NUCLEOTIDE SEQUENCES SUBMITTED IN NCBI

- ❖ SUB11719791
Falsibacillus pallidus ON873890
- ❖ SUB11719728
Cytobacillus firmus ON873785
- ❖ SUB11719753
Priestia endophytica ON873884
- ❖ SUB11719744
Rossellomorea marisflavi
ON873883



PARTICIPATED/PAPER PRESENTED IN CONFERENCE/SEMINAR

1. Participated and Presented Oral Presentation entitled “**Anticancer properties of Biogenic Palladium Nanoparticles synthesized by Falsibacillus pallidus**” in the 7th International conference on Recent trends in applied science and technology (ICRTAST-2024) held on 2nd and 3rd February 2024, Annamalai university association with Indian science and technology association (ISTA) and Indian Spectro Physics Association (ISPA).
2. Participated and Presented Oral Presentation entitled “**Biogenic Palladium Nanoparticles synthesis from marine bacterial extract and its anticancer activity against lung cancer cells**” in **International conference** on “Converging Microbiological Innovation for Application in Animal, Plant, Environment and Health Care (ICCMIA -2023) held on 27 &28th January 2023 Organized by Indian Association of Applied Microbiologists(IAAM) and Department of Animal Science, Manonmaniam Sundarnar University, Tirunelveli, India.
3. One day **International Conference** on “**Modern Trends in Microbiology**” organized by PG & Research Department of Microbiology, held on 13th May 2022 ,V.H.N. Senthikumara Nadar College Virudhunagar.
4. Participated on One day **International Conference** on “**Biotechnology and Bioinformatics**” held on 28th April 2022 organized by Department of Microbiology, Kamban College of Arts and Science for Women, Thiruvanamalai.
5. Participated in **International Conference** on “**Application of Smart Materials**”, held on 5th to 7th February 2022 at department of Biochemistry, Department of biotechnology & Department of Pharmacy, Annamalai University, Annamalai nagar.
6. Participated and delivered a talk on “**Human Microbiome in Health and Disease**”, held on 7th to 13th February 2020 Annamalai University Alumni Association sponsored **AUM TO PET** Events on **Selman A.Waksman Award** in Microbiology organized by Department of Microbiology ,Annamalai University.

PHYTOCHEMICAL STUDIES

- ❖ Plant extraction and bioassay-guided fractionation.
- ❖ Active principle identification using HPTLC, TLC, NMR in plant and microbial extracts.
- ❖ *In-vitro* free radical scavenging assays for determining antioxidant potential.



Instruments handled

- ❖ Microscope.
- ❖ Autoclave.
- ❖ Laminar Airflow Chamber.
- ❖ Incubator.
- ❖ UV – Visible Spectrometer.
- ❖ Micro-Stirrer
- ❖ RT-PCR



WEBINARS

1. Webinars on “**Basic author Workshop Research Article Writing and reference Management using Mendeley**” held on 22nd June 2020 Organized by Annamalai university, Annamalainagar.
2. Webinars on “**Frotiners in Cancer Biology**” held on 26th July 2020 organized by Department of Microbiology and Department of Biochemistry and Biotechnology, Annamalai University.
3. International Webinars on “**SARS-COV-2 Coronavirus :Emergence and Antiviral Strategies**” held on 2nd July Organized by Department of Botany ,V.O. Chidambaram College, Thoothukudi.
4. Webinars on “**DNA Damage Responses ,Cancer Susceptibilities and Therapeutics**” held on 20th July 2020 Organized by Department of Biochemistry & Biotechnology ,Annamalai University.
5. Webinar on “**Handling and Management of Biomedical Waste-pre & post COVID-19**” held on 7th July organized by Sathyabamma Institute of Science and Technology.
6. International Webinars on “**New Horizons and Breakthrough in Cancer Research in Present Era**” held on 27th March 2021 B.N.Patel Institute of Paramedical and Science.
7. Webinar “**Metagenome Sequencing**” held on 12th March 2021 organized by Department of Microbiology, Faculty of Agriculture, Annamalai University.
8. International Webinar on “**Recent Developments of Beneficial Micro organism in Food and Agriculture(RDBMFA-2021)**” held on 14 th September 2021 organized by Department of Agricultural Microbiology, Faculty of Agriculture, Annamalai University.

COMPUTER SKILLS

- ❖ Microsoft Office
 - Excel,
 - Word,
 - Powerpoint



WORKSHOP ATTENDED

1. Participated in one day “**International Workshop on Infectious Diseases and Their control**”, held on 11th November ,2019 at Department of Pharmacy, Annamalai University, Annamalai Nagar.
2. Participated on National level workshop on “**Arts of Research Writing and Plagiarism Check**” held on 12th December 2019 at Annamalai University.
3. Worskshop on “**Article Publishing Techniques and tools – Workshop for quality Research Output – users Awareness and Training Program**” held on 20th November 2019 at Annamalai University.
4. Two day Workshop on “**Vaccine Research**” held on 8th and 9th May 2021 orgainzed by Veridian Micro Lab Pvt Ltd.
5. One day Workshop in “**Hands-On Training in Laboratory Animals- HOLA22**”, organized by the Department of Pharmacology, MGMC & RI in collaboration with IPS Pudhucherry.
6. Two day National Workshop on “**Advanced Biomaterials For Sustainable Development Goals (ABSDG-2023)**” held on 24 and 25 th January organized by Department of Microbiology, Faculty of Science Annamalai University, Annamalai nagar

DECLARATION

Herewith, I Ms. J. Tharani D/O A. Jayakumar, declare that all the information furnished above is accurate to the best of my knowledge. My area of expertise is Isolation of Microorganism, Biofilm, the exploration of biosynthesis of nanoparticles, and Extraction of microbial metabolic. I have employed several experimental models for my doctoral research. I have constant thrust to learn new things to equip myself to progress as a complete researcher. I can quickly grasp new concepts and employ these learning in my study for maximum productivity. I am cordial with my colleagues and employers and achieve the goals within the stipulated time. Herein, I state that I will be an asset in your laboratory for maximum productivity.

Sincerely yours,

J. Tharani