

Peerzada Gh Jeelani

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Present Status: Assistant Professor at
PG & Research Department of Biotechnology
& Microbiology. National College, Tiruchirapalli – 620 001.

<https://scholar.google.com/citations?user=2EWDtF4AAAAJ&hl=en&authuser=3>



Summary

Ph.D. Grad trained in Interdisciplinary Research in the field of Biotechnology, with strong lab skills developed from extensive research experience and ability to work independently or as part of a team. Expertise in the following areas

- Biotechnology
- Sustainability
- Critical Literature Review
- Microbiology
- Phytochemistry
- Material synthesis and characterization

Education

VIT University

PhD Nano-Biotechnology

IFTM University

M. Tech (Biotechnology)

Bharath university

B. Tech

Vellore Tamilnadu

(2016-2022)

Moradabad U.P

(2013-2015)

Selayur Chennai Tamilnadu

(2009-2013)

Research Publications

- **Jeelani, P.G.**, Mulay, P., Venkat, R. and Ramalingam, C., 2020. Multifaceted application of silica nanoparticles. A review. *Silicon*, 12(6), pp.1337-1354. **I.F 3.4**
- **Peerzada, J.G.** and Chidambaram, R., 2020. A Statistical Approach for Biogenic Synthesis of Nano-Silica from Different Agro-Wastes. *Silicon*, pp.1-13. **I.F 3.4**
- **Jeelani, P.G.** and Ramalingam, C., 2021. Statistical approach to synthesise biogenic silica nanoparticles from rice husk and conjugated with *Justicia Adhathoda* extract as green, slow-release biocide. *IET Nanobiotechnology*. **I.F 2.05**
- **P.G. Jeelani** et al. Biogenic systems of mesoporous silica and its potential application in agrochemical delivery system *Int. J. Nanotechnol.*, Vol. 18, Nos. 5/6/7/8, 2021 **I.F 1.023**
- Sivagnanam, S.K., Rao, R.K., Mudiganti, D.U. and **Jeelani, P.G.**, 2012. Preliminary phytochemical analysis of *Artemisia amygdalina*, *Nerium odorum* and *Strychnos potatorum*. *Journal of Pharmacy Research*, 5(7), pp.3734-3739.
- **Jeelani, P. G.**, Munawar, S. M., Basha, S. K., Sinclair, B. J., Jenifer, A. D., Ojha, N., ... & Chidambaram, R. (2023). Exploring Possible Strategies for Treating SARS-CoV-2 in Sewage Wastewater: A Review of Current Research and Future Directions. *Hygiene and Environmental Health Advances*, 100056.
- **Peerzada Gh, J.**, Sinclair, B.J., Perinbarajan, G.K. et al. An overview on smart and active edible coatings: safety and regulations. *Eur Food Res Technol* (2023). **I.F 3.8**
- **Peerzada Gh Jeelani**, Abdel-Tawab Mossa, Bruce Joshua Sinclair , Gopikrishna Perinbarajan , Harish Ganesan , Nupur Ojha , C. Ramalingam , Pandiyan Muthuramalingam, the therapeutic potential of chia seeds as medicinal food, A REVIEW IJPSR/RE-5862/01-23 01 June 2023 *International Journal of Pharmaceutical Sciences and Research (IJPSR)*. (Accepted for Publication)

Manuscripts Under Review

- Gopi Krishna Perinbarajan , Bruce Joshua Sinclair , Abdel-Tawab Mossa , Nupur Ohja, **Peerzada Gh Jeelani*** *Silica-Annona Muricata* Nano-hybrid: Synthesis and anticancer activity against Breast Cancer HELIYON-D-23-19583. <https://dx.doi.org/10.2139/ssrn.4468438>
- **Peerzada Gh Jeelani** , Ramalingam Chidambaram, *Vitex Negundo* and *Vitex trifoli*

Conjugated biogenic silica nanoparticles for improving bioavailability and its Entomotoxic activity JESC-D-22-03319 Journal of Environmental Sciences.

- **Peerzada Gh Jeelani** , Ramalingam Chidambaram, Cytotoxicity evaluation of entomotoxic silica nanoparticles and conjugated biogenic silica nanoparticle used as nanocides JOPS-D-22-00997 Journal of Pest Science.
- **Peerzada Gh Jeelani** *, Bharathi Lakshmi, Shirley Hannah , Ramalingam Chidambaram , Bruce Joshua Sinclair , Gopi Krishna , Nupur Ojha, Muthuramalingam Pandiyan, Abdel-Tawab Mossa, Advancements in Eco-Friendly Food Packaging through Nanocomposites: A Review. Polymer Bulletin, POBU-D-23-00511.

Manuscripts Under Preparation

- Insecticidal activity and the mechanism of action of silica conjugated Piper sarmentosum Roxb, Insect Biochemistry and Molecular Biology
- Ammonium phosphate [diammonium phosphate (DAP), monoammonium phosphate (MAP)] Quaternized Chitosan-Capped Biogenic Mesoporous Silica Nanoparticles as Nanocarriers for Controlled Fertilizer Release, Nano Research
- Silica nanoparticles an Entomotoxic Agent . A review, Journal of Pest Science
- Geno and Cytotoxicity of Entomotoxic Conjugated Biogenic Silica Nanoparticles, Journal of Hazardous Materials

Book Chapters

- **Jeelani, P.**, Ghai, A., Saikia, N., Kathed, M., Mitra, A., Krishnan, A., Sharma, A. and Chidambaram, R., 2020. Baby Foods Based on Cereals. In Food Science, Technology and Nutrition for Babies and Children (pp. 59-97). Springer, Cham.
- Kusumitha, S., Aeron, V., **gh Jeelani, P.** and Chidambaram, R., 2020. Prebiotics and Probiotics in the Formulation of Infant Foods. In Food Science, Technology and Nutrition for Babies and Children (pp. 35-57). Springer, Cham.
- Mukherjee, A., Panda, S., **Jeelani, P. G.**, Mossa, A. T., & Chidambaram, R. (2023). Biodegradable polymers/silica nanocomposites: Applications in food packaging. In Nanotechnology Applications for Food Safety and Quality Monitoring (pp. 395-414). Academic Press.
- Barve, S., Singh, N. V. V., Rasbhara, C., Sarkar, **P., Jeelani, P. G.**, Mossa, A. T., & Chidambaram, R. (2023). Silica-based nanocomposites for preservation of post-harvest produce. In Nanotechnology Applications for Food Safety and Quality Monitoring (pp. 373-394). Academic Press..
- Mukherjee, A., Panda, S., Jeelani, P. G., Mossa, A. T., & Chidambaram, R. (2023). Biodegradable polymers/silica nanocomposites: Applications in food packaging. In Nanotechnology Applications for Food Safety and Quality Monitoring (pp. 395- 414). Academic Press.

Patents

Title of Invention : Designing and fabrication of biogenic silica nanoparticles for targeting Breast Cancer Cells

Patent No: 202341017667,

Publication Date: 31/03/2023

Organization : Controller General of Patents, Designs, and Trade Marks (CGPDTM), Intellectual property of India.

Analytical Skills

- Sample preparation: Demonstrated expertise in preparing various types of samples for analysis, such as Plant extracts, Biogenic Nanoparticles, Nanohybrids, Polymers, Proteins and DNA.
- Data acquisition: Proficient in using a range of analytical techniques, including TEM, SEM, EDAX, DLS, FTIR, XRD, AFM, Zeta Potential and acid hydrolysis for DNA quantification, to obtain high-quality data.
- Biocompatibility and toxicity assays: Experienced in conducting biocompatibility and toxicity assays to evaluate the safety and efficacy of nanoparticles for use in various applications.
- Antifungal and entomotoxic activity assays: Demonstrated expertise in conducting assays to

determine the antifungal and entomotoxic activity of nanoparticles, as well as plant extracts.

- Mechanism of action studies: Skilled in designing and conducting experiments to investigate the mechanisms of action of nanoparticles and other compounds, using various techniques such as Acetylcholinesterase (AChE) inhibition Method (Ellman method), fluorescence microscopy and flow cytometry.
- Controlled release of fertilizers from nanoparticles: Proficient in developing and optimizing techniques for the controlled release of fertilizers from nanoparticles, to improve plant growth and productivity.
- Optimization and synthesis of cellulose and hemicellulose from agrowastes: Experienced in developing and optimizing methods for the synthesis of cellulose and hemicellulose from agrowastes, using various chemical and enzymatic processes.
- Protein extraction using ultrasound-assisted methods: demonstrated expertise in extracting proteins from microorganisms, using ultrasound-assisted methods, for downstream analysis.
- DNA extraction and purification: Skilled in extracting and purifying genomic DNA from various samples, using various techniques such as phenol-chloroform extraction and commercial DNA extraction kits.
- Phytochemical analysis of plant extracts: Proficient in conducting phytochemical analysis of plant extracts to identify and quantify various bioactive compounds, using various techniques such as HPLC and GC-MS.
- Data analysis: Skilled in analyzing and processing large sets of data, using software programs such as SPSS, Design Expert, Excel, Origin, and ImageJ, to generate accurate and reliable results.
- Interpretation: Demonstrated ability to interpret complex data, draw meaningful conclusions, and communicate findings effectively through written reports and presentations.
- Troubleshooting technical issues: Proficient in identifying and resolving technical issues that may arise during sample preparation, data acquisition, or analysis, ensuring optimal performance of analytical instruments and techniques.

Research Experience

PhD Student - VIT University

- Conducted research on the biogenic synthesis, fabrication, optimization, and characterization of silica nanoparticles, as well as the conjugation of SNPs with plant extracts.
- Investigated the entomotoxic activity of conjugated SNPs against important stored grain pests, including *Sitophilus oryzae*, *Rhyzopertha dominica*, and *Tribolium castaneum*, as well as the antifungal assay of conjugated SNPs against *A. niger* and *F. Oxysporum*.
- Conducted toxicological evaluation of conjugated silica nanoparticles against SF9 and MRC-5 cell lines and studied the mechanism of action of conjugated silica nanoparticles against stored grain pests.
- Designed biogenic silica nanoparticles for controlled release of nitrogen fertilizers, biopesticides, and drugs.

M.Tech Student - IFTM University

- Conducted major project on "Optimization and Synthesis of Cellulose and Hemicellulose from Agro-wastes for Sustainable Production"
- Conducted minor project 1 on "Process Optimization and Evaluation of Protein Extraction by Ultrasound Assisted Method from E. coli"
- Conducted minor project 2 on "Quantification of Genomic DNA Using Acid Hydrolysis and Mass Spectrometry"

B.Tech Student - Bharath University

- Conducted final project on "Optimization of Bioreactor Conditions for Maximum Lipase Production from *Bacillus subtilis*"
- Conducted minor project 1 on "DNA Extraction and Purification"
- Conducted minor project 2 on "Preliminary Phytochemical Analysis of *Artemisia Amygdalina*,

Nerium Odorum and Strychnos Potatorum"

Leadership Experience

- Supervised several groups of B.Tech and MSc students in SET projects at VIT University, resulting in one research article published as first author in a TR impact journal in collaboration with MSc students: "Biogenic Systems Of Mesoporous Silica And Its Potential Application In Agrochemical Delivery System."
- Published five book chapters in collaboration with B.Tech students and currently collaborating with five groups of B.Tech and MSc students in writing additional book chapters.
- Conducted numerous lab tours for bachelor's and master's students in our lab at VIT University, and volunteered to host two international science conferences at IFTM and VIT University.
- Volunteered as coordinator for the VIT Bio Summit 2017 and ICBB 2016 conference.
- Experienced in lab handling for three years in the areas of bioinformatics, immunology, microbiology, food technology, biochemistry, molecular biology, and chemistry labs at VIT University.
- Six months of experience in handling SEM, EDAX, and Zeta instruments.
- Co-convener of the Third International Conference on Future Prospects of Biological Sciences and Biotechnology (ICFBB) held by the Department of Biotechnology on September 22-23, 2022, at Sri Shakthi Institute of Engineering and Technology, Coimbatore, Tamil Nadu.
- Awarded an Expert certificate at Smart Hackathon Grand Finale 2022 for exceptional contribution as an Expert conducted by the Ministry of Education and AICTE on August 25-26.
- Coordinator of Smart Hackathon Grand Finale 2022 conducted by the Ministry of Education and AICTE on August 25-26 at Sri Shakti Institute of Engineering and Technology, Coimbatore, Tamil Nadu.

Teaching experience

- Assistant Professor : Sri Shakthi Institute of Engineering and Technology (12/02/2022-08/06/2022)
- Taught 2 courses and 1 laboratory per semester , including Biology for computer Engineers, Biology for Mechanical Engineers , Environmental Science for Biotechnology, Protein Engineering and Genetic Engineering Laboratory
- Designed and implemented engaging lesson plans that incorporated the latest technology and pedagogical practices
- Assessed student performance through exams, projects, and assignments, providing regular feedback and constructive criticism to enhance their learning
- Mentored and advised students on academic and career-related matters, helping them to reach their full potential
- Head of biopesticide laboratory, Assistant Professor, Sri Shakthi Institute of engineering and technology Department of Biotechnology (21 Feb 2022)
- Incharge of Animal Tissue culture laboratory, Assistant Professor, Sri Shakthi Institute of engineering and technology Department of Biotechnology (21 Feb 2022)
- 2nd Year B. Tech Class Coordinator.

Administrative Experience

- Experience of Handling the NAAC Accreditation Criteria 1
- Experience of NBA Accreditation filing Criteria
- Department Research Coordinator
- Admission Counselling
- Personal and Professional Counselling coordinator of 2nd Year B. Tech Class Students

Technical skills

Software: Auto Dock, MODELLER, NetTurnP, NetSurfP, SPSS , Design-Expert , Excel ,Prism , Bioinformatics-Tools

Languages: English,` Kashmiri(mother tongue), Urdu, Hindi , Tamil

Hobbies: Hiking , Writing , Photography , Learn a New Language , cooking , cricket

Hands On Training


- A series of 6-Days Hands-on Workshop on Cell Culture Techniques & MTT Assay School of Bio Sciences and Technology VIT University, Vellore 632 014. Tamilnadu.India.
- Basic Training Program in Nano Science and Technology, Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc), Bangalore-560012, Karnataka, India 14 - 16 May 2019, supported by MHRD, GoI.
- Seven Days Online training in Docking Studies RASA Life Science Informatics | 401,46/10, Sakuntal, Law College Road, Erandwane, Pune .
- Three days national workshop Statistics for data analysis and structural equation modeling (SEM) using SPSS AMOS Department of Technology Management VIT, Vellore in association with SPSS.

Conferences

- National conference on “Recent Trends In Applied Perspectives Of Plant Sciences (Ncaps - 2018) Organized by pachaiyappas college (**Poster Presentation**)
- ICNAN'192nd international conference on nanoscience and nanotechnology November 29, 2019 - December 1, 2019 organized by Centre for nanotechnology research, Vellore institute of technology, Vellore, India) (**Poster Presentation**) (**Paper Published**)
- International Virtual Conference on Advanced Nanomaterials and Applications (VCAN 2020) organized by center for nanotechnology research, Vellore institute of technology, Vellore, India) (**Paper Published**).
- Poster presentation at vit bio summit 2016. “**Fibrinolytic protease from marine *Streptomyces rubiginosus* VITPSSM,**” ICCB poster presentation at vit university 2016.
- Oral Presentation “**Optimization and Synthesis of Cellulose and Hemicellulose from Agrowastes for Sustainable Production**,” “Research Trend in Bio Tech” Conference organized under TEQIP-II by the IFTM University, June - 30th, 2014.
- Oral presentation at International Conference on Advanced Nanomaterials and Emerging Engineering Technologies (ICANMEET-2013) Sathyabama Institute of Science and Technology (Deemed to be University), India, during July 25th to 27th, 2013 in association with Defense Research & Development Organisation (DRDO), New Delhi. “**Optimization of Bioreactor Conditions for Maximum Lipase Production from *Bacillus subtilis***”,
- Guest Lecture Third International Conference on Future prospects of Biological Sciences and Biotechnology (ICFBB) held By department of Biotechnology on September 22-23, 2022 in Sri Shakthi Institute of Engineering and Technology, Coimbatore, Tamil Nadu.

Declaration

I hereby declare that all the information given in this application is true to the best of my knowledge and belief.



Sincerely,
Dr Peerzada Jeelani

Date: 12.07.2023