Curriculum Vitae

Dr. Jojy John Ph.D.
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I am a Microbial Ecologist, specialized in Molecular biology, Bioinformatics, Genomics and Microbiology with 6+ years of experience using quantitative and qualitative research methods.

Research Background: Microbiology (Bacterial enrichment, isolation and Identification _poly phasic taxonomy), Molecular Biology (DNA/RNA/protein extraction, qPCR, sequencing, NGS, Oxford Nanopore technology, HiSeq, MiSeq etc.), Bioinformatics (metagenomics, whole genome analysis, genome binning, whole genome metagenome, metabarcoding, Phylogenomic, Phylogenetic etc.), Linux based big data analysis, Python (Pandas, NumPy, ScoPy, Matplotlib etc), R, Isotope labelling (NanoSIMS), PLFA, Flow cytometry, cell culture etc.

Education

Education	Institute	Year and percentage
Ph.D. in Microbial Ecology	Sathyabama Institute of Science and Technology, Chennai, India	2021
Master's program Data scientist_ Python for data science	IBM & Simplilearn, Bangalore, India (distance education, Online)	Dec 2022 - Ongoing
M.Sc. Microbiology	Mahatma Gandhi University, Kottayam, Kerala, India	2012-2014, 83% (6^{th} Rank)
B.Sc. Microbiology	Mahatma Gandhi University, Kottayam, Kerala, India	2009-2012, 80% (10^{th} rank)

Ph.D. Thesis: **"Diversity, genomic studies and resistance mechanisms of moderate halophilic bacteria: insights from *Salinivibrio* sp. isolated from Marakkanam salt pan";** Sathyabama Institute of Science and Technology, Chennai, India; Supervisors: Dr. Vinu Siva, Dr. Amit Kumar

Research Experience

1. **Research Fellow** Centre for Climate Change Studies April 2021-November 2021`
   Sathyabama Institute of Science and Technology, Chennai, India

   - Understanding of UV_B radiation resistance of *Pontibacillus salipaludis subsp.* Marakkanamensis isolated from a salt pan and reconstruction of UV resistance and DNA repair pathways: Insights from Whole genome sequencing.
   - Bacterial community analysis of oxygen minimal zones of the Arabian sea and understanding on their survival mechanism through shotgun metagenome followed by single genome retrieval through metagenome binning.

2. **Project Assistant-II (Collaborative work)** Bioinformatics Lab, BOD April 2019 – March 2021

National Institute of Oceanography, Goa, India

- Open Ocean sampling at Central Indian Ocean Basin on a 36 days long cruise for the environmental impact assessment on poly metallic nodule mining and on-board sample preparation for Microbiology, Molecular Biology and other analysis.
- Isolation and cultivation of bacterial strains from the deep-sea sediment, poly metallic nodules and pore water and identification through polyphasic taxonomy (biochemical tests, microscopic analysis, 16S rDNA phylogeny etc.).
- Screening of metal tolerance of isolated strains.
- Bacterial community analysis of deep-sea sediment, poly metallic nodules and pore water through metagenome studies.

3. **Senior Research Fellow** Centre for Climate Change Studies Jan 2018-Dec 2018
Sathyabama Institute of Science and Technology, Chennai, India

- Isolation and Identification of bacterial strains from different sources including water, soil, seaweeds, microalgae, and seawater
- Biology and biotechnological potential of moderately halophilic bacteria isolated from salt pan
- Screening of different biotechnological potentials of bacterial strains and transformation of their properties to industrial/aquaculture applications.

4. **Junior Research Fellow** Centre for Climate Change Studies Feb 2016 –Jan 2018
Sathyabama Institute of Science and Technology, Chennai, India

- Bacterial diversity analysis of the salt pan through 16S rRNA metagenomics through oxford nanopore technology and through cultivable approach.
- Understanding the survival strategies of moderately halophilic bacteria through whole genome sequencing.
- Studies on effect of climate change on shrimp larval forms through differential gene expression.

5. **M.Sc. Research experience (Thesis)** Pathogen Biology Lab May 2014 –August 2014
Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala India

- Analysis of cell death patterns of the THP 1 cells infected with *Mycobacterium tuberculosis* H37Ra and H37Rv using flow cytometry and Immunofluorescence microscopy.

6. **B.Sc. Research experience** (Thesis) Department of Microbiology March 2012 -June 2012
Sree Sankara College, Kalady, Kerala, India

- Studies on antibacterial effect of Ginger, Garlic & Ginger- Garlic mixture on enteric pathogens like *Shigella* and *Salmonella* species

Publications

- **John, J.,** Dineshram, R., Hemalatha, K. R., Dhassiah, M. P., Gopal, D., & Kumar, A.(2020). Bio-Decolorization of Synthetic Dyes by a Halophilic Bacterium *Salinivibrio* sp. Frontiers in Microbiology, 11, 3281. (Impact factor 5.6)
- **John, J.,** Siva, V., Kumari, R., Arya, A., & Kumar, A. (2020). Unveiling Cultivable and uncultivable Halophilic Bacteria Inhabiting Marakkanam Saltpan, India and Their Potential for Biotechnological Applications. Geomicrobiology Journal, 1-11. (Impact factor: 2.3)

- **John, J.,** Siva, V., Richa, K., Arya, A., & Kumar, A. (2019). Life in High Salt Concentrations with Changing Environmental Conditions: Insights from Genomic and Phenotypic Analysis of *Salinivibrio* sp. Microorganisms, 7(11), 577. (Impact factor: 4.152)
- **John** J, Siva V, Kumar A. (2020). Isolation and characterization of Saltpan bacteria for developing bacterial consortium for the complete removal of nitrogen pollution from aquaculture pond. Conference proceedings – An Insight on Environmental Toxicology (ISBN 978-93-5396-157-2). Hosur, India: MGR College, p377–388
- **John, J.,** Siva, V. S., & Kumar, A. (2020). Physiological tolerance of the early life history stages of freshwater prawn (*Macrobrachium rosenbergii* De Man, 1879) to environmental stress. Indian Journal of Geo-Marine Sciences Vol. 49 (03), March 2020, pp. 382-389

Teaching/Supervision

- Supervision of 3 interns (BTech.), and 4 dissertation students (MTech.) in the field of Microbiology, Bioinformatics, and Marine microbiology at the National Institute of Oceanography, Goa, India during **2019-2021**
- Guided 2 dissertation students in the field of microbial ecology at the center for climate change studies at Sathyabama Institute of Science and Technology, Chennai, India_**2016-2019**
- Taught DNA extraction, PCR, and Taxonomy, to JRFs of the center for climate change studies at Sathyabama Institute of Science and Technology, Chennai, India_**2016-2019**
- Handled microbiology practical session to MTech Biotechnology students at Sathyabama Institute of Science and Technology_**2018-2019**
- Taught practical and theory sessions (HPLC, Biochemical tests, UV-Visible spectroscopy, etc.) to M.Sc. Microbiology/biotechnology student at Mar Athanasius College, Kothamangalam, Kerala, India **_2013-2014**

Skills

- **Field experience:** Cruise sampling for microbiology and molecular biology, Sampling of deep-sea sediment and nodules, Onboard isolation of DNA and RNA, physiochemical analysis of sediment and Nodules, Seawater filtration using cartridge and sterivex filter, operation of different sample gears (Benthic Sled, beam trawl, multi-core and bongo net), Sediment and water sampling from salt pan, sample collection for microplastic analysis, metal analysis from tissues, etc.
- **Microbiology skills**: Cultivation of maintenance of bacterial strains from different sources, enumeration and characterization of bacteria by plating methods, bacterial identification through Polyphasic taxonomy, Molecular taxonomy, Screening of microbes for bioremediation and bioprospecting, Different staining, microscopic techniques, Lyophilization, Screening of bacterial strains for different bioremediation and bioprospecting, etc.
- **Molecular biology skills**: DNA, RNA, and protein extraction, nested PCR, touch down PCR, real-time qPCR, cDNA synthesis, cloning, SDS, agarose gel electrophoresis, Nanodrop, Qubit, Sanger sequencing, Preparation for metagenome, whole-genome sequencing, etc.
- **Bioinformatics**: Linux, creating and modifying scripts in Linux, Handling of large data sets (DNA sequences, metagenome, metabarcoding, whole-genome sequencing data set, etc.), Sanger sequence analysis (Bioedit, Chromous, etc), phylogenetic analysis, (Mega), Whole-genome analysis (Squeeze meta and Metawrap), metagenome and metabarcoding (Qiime, Mothur, Centrifuge, R and python, etc), RT-PCR data analysis (REST), Genome annotation (RAST), Sequence preprocessing, assembly, annotation, data visualization (Artemis), qualitative and quantitative analysis of microbiome data, Hybrid assembly, Oxford nanopore sequencing and analysis, Metagenome binning, hybrid assembly, etc.
- **Data Science**: Data wrangling (Pandas), data exploration and visualization(Mat plot Lib), scientific computing(NumPy and SciPy) and so on.
- **Statistical tool and software**: R, SPSS, Origin, MS Excel, and Prism.
- **Microscopy**: Nikon inverted light microscope, Dissection microscope, FTIR data analysis, and Epifluorescence microscope

- **Biochemical techniques**: UV-Visible spectrophotometer, Raman spectroscopy analysis, Flow cytometry, biomolecule extraction using Soxhlet, enzymatic assays, anti-oxidant assays, etc.

Other Scientific Deliverables

- **Submission of the genome** of halophilic bacteria *Salinivibrio sp.* (BioProject: PRJNA437691) in NCBI GenBank (SRA: SRP135859; WGS: PXUD00000000).
- Submission of the several **metabarcoding data of deep-sea sediment and nodules** (Submission ID: SUB10145253; BioProject ID: PRJNA755853) in NCBI GenBank
- **Deposition of moderately halophilic bacteria *Salinivibrio* sp**. in Microbial Type Culture Collection (MTCC) public repository, IMTech, Chandigarh (strain number: 12905).
- Submission of ***16S rRNA* sequences** was submitted to NCBI GenBank: halophilic bacteria (MH071684.1, MK389347, MK389348, MK389349, MK389350, MK389351, MK389352, MK389353, and MK389354;p marine bacteria (MG273766.1, MG273765.1, MG273764.1, MG273763.1, MG273762.1, MK503717, MK503718; bio-fouling marine bacteria and deep-sea bacteria; MW048854, MW048855, MW048856, MW048857, MW126991, MW126992, MW126993, MW126994, MW126995, MW126996)
- Submission of several 18S, CO1 barcodes, and histone sequences of marine invertebrates in NCBI GenBank

Honors and Awards

- **Best poster award** in International Conference on Waste, Energy, and Environment (ICWEE) 2018
- **Best Oral presentation** in OMICS AFM 2018 (National Symposium on the Application of 2018 Genomics and Proteomics in Aquaculture, Fisheries, and Marine Biology)
- **6th University rank** in Master of Science (Microbiology), MG University, Kerala, India. 2014
- **10th University rank** in Bachelors of Science (Microbiology), MG University, Kerala, India.2012

Invited Talks

- Invited talk on **"The magic of eDNA for laypersons" in** a webinar organized by Coastal Impact (NGO), India on 12 September 2020.
- Invited talk on **"How Microbial genomics can be applied in Research?"** in an Online Workshop on Microbial Genomics conducted by Center for Bioinformatics, Computational and Systems Biology, Pathfinder Research and Training Foundation, Greater Noida, Utter Pradesh on June 1st to 5th,2020.

Workshop/Courses/Conference (Recent)

- **Bioinformatics for biologist** by Wellcome connecting science with 80%, October 2021 (Online-future learn, Wellcome Genome Campus, UK).
- **Programming for everybody introduction to python** by the University of Michigan, through future learn with 74%, September 2021 (Online, Michigan University, USA).
- **Bacterial Genomes III: Comparative genomics using Artemis comparative tool** by Wellcome connecting science with 74%, May 2020 (Online, Wellcome Genome Campus, UK).
- **Bacterial Genomes: Accessing and Analyzing Microbial Genome Data** by Wellcome genome campus advanced courses and scientific conferences, with 74%, May 2019 (Online, Wellcome Genome Campus, UK).
- **20-day online training on targeted metagenome, metabarcoding, and Whole-genome metagenome data analysis**, August 2019 (ArrayGen Technologies Pvt Ltd, Pune, India)
- **Bacterial Genomes: From DNA to Protein function using bioinformatics** by Wellcome genome campus advanced courses and scientific conferences, with 77%, 28-June-2018 (Online, Wellcome Genome Campus, UK).

- **Bacterial Genomes: Disease outbreaks and anti-microbial resistance** by Wellcome genome campus advanced courses and scientific conferences, with 73%, 28-May-2018(Online, Wellcome Genome Campus, UK).
- 2nd introductory course on **Next-Generation amplicon sequencing - data analysis** at Sathyabama Institute of Science and Technology, Chennai on 27-29th July 2018.
- One-day practical course on **DNA taxonomy and phylogeny** at Sathyabama Institute of Science and Technology, Chennai. 9th May 2018.
- 1st introductory course on **Next-generation amplicon sequencing - data analysis** at Sathyabama University, Chennai on 30-31st August 2017.

Manuscripts under preparation (as the first author)

- **John, J.,** Dineshram., Biju A, Damre S., …. Life associated with deep-sea sediments and nodules: Insights from the 18S metabarcoding. **Submitted to Minerals MDPI (under review).**
- **John, J.,** Dineshram., …. Bacterial community differences between oxygen minimal zones of the Arabian sea: Insights from whole-genome metagenome (Under revision with the PI)
- **John, J.,** Vinuganesh, Prakash S & Kumar, A. UV B halotolerant bacteria and their biology based on the genome of *Pontibacillus salipaludis subsp. marakkanamensis* isolated from Marakkanam Salt pan (Under revision with the PI)
- Biju A,**John,J,**Dineshram,…….. Microplastic in deep-sea sediments and Polymetallic nodules of Central Indian Ocean Basin (**Under the revision** , Environmental Pollution).

Abstracts for Poster and Oral Presentations

- **John, J.,** Siva, V., Kumar A. 2018. Heavy metal bioremediation potential of moderately halophilic bacteria isolated from salt pan. ICWEE, Sathyabama, 2018. Abstract book: 31. **(Best poster award)**
- **John, J.,** Siva, V., Kumar A. 2018. Biotechnological Potential of Moderately Halotolerant Bacteria: Insights from Genomic Analysis of *Salinivibrio* sp. Isolated from Salt Pan. Proceedings of the National Symposium on the Application of Genomics and Proteomics in Aquaculture, Fisheries, & Marine Biology (omicsAFM 2018), Sathyabama Institute of Science and Technology, 13. **(Best oral presentation award)**

References

1. **Dr. Amit Kumar**
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   (Former Scientist at Centre for Climate Change Studies)