Karuna. Jetti Ph.D

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PROFILE

- Highly self-motivated Ph.D. candidate with demonstrated research experience in microbiology, biofuels, strain improvement, biotechnology, DNA, and RNA technologies, and plant biology.
- A Grant of 25,300 USD was awarded by the Department of Science and Technology (DST) India, under Women Scientist Scheme –A (WOS-A), Order No. SR/WOS- A/LS-1214/2015 (G) dt. 12.09.2016.
- Six years of research experience in strain improvement (protoplast fusion) and DNA technologies in *Saccharomyces cerevisiae* (yeast), *Pichia stiptis* (yeast), and *Zymomonas mobilis.*
- Mentored undergraduate students and held lab classes as a part of a teaching assistant.
- Hands-on experience on whole-genome Sequencing.

CURRENT POSITION

- Postdoctoral Fellow — September 2022 – Present
  Sandia National Laboratories, Livermore,
  California, United States.

PREVIOUS EXPERIENCE

Head of Microbiology/ QA — January 2020 - August 2022
Almubtakar laboratory, Abu Dhabi, U.A.E

- Handling functions relating to Microbiological analysis of water, wastewater, food, and air according to the standard specified by ISO/IEC 17025.
- Developing SOPs and method validation procedures for various microbiological analyses.
- Existing knowledge and hands-on experience in performing tests, recording, and documenting the results.
- Maintaining all quality-related documentation and contributing to lab operations management.
- Monitoring of water samples in industries, hotels, hypermarkets, hospitals, dental clinics, and recommending them in respect to improving the quality system.
- Played a major part in establishing and developing the current lab and successfully finished its ISO 17025 accreditation (ENAS).
- Mentoring and training the incoming staff with regards to laboratory techniques and GLP standards.
- Supervising the team to ensure that analyses are in conformity with the standards.
- Monitoring and maintaining the quality control in the analysis and performing the corrective actions in case of any deviations.
- Ensuring that standard operating procedures and Quality Assurance tests are maintained

EDUCATION

- Doctor of philosophy, Biotechnology — January 2015- March 2019
  GITAM University, Visakhapatanam, India
  Title: Enhancement of biofuel production from lignocellulosic biomass through genome shuffling of yeast strains.
- M.Sc In Biotechnology — July2007- August 2009
  Amity University, Noida, India
  Title: "Isolation of human fetal liver stem cells using CD326 marker"
  Incorporation of Exon 18 of ASPM(abnormal spindle like microcephaly assosiated) gene in pUC 18 vector(e.coli (NCMI-2995))

- Bachelor in Biotechnology June 2004- March 2007
  Andhra University, India.

RESEARCH EXPERIENCE

Doctoral Thesis January 2015 - March 2019
Department of Biotechnology, GITAM, India
Advisor: Dr. N.Sai Kishore

Thesis Project: Enhancement of biofuel production from lignocellulosic biomass through genome shuffling of yeast strains.

- Developed an efficient hybrid Yeast strain SP2-18 through genome shuffling which can coferment both pentoses and hexose sugars.
- Studied the fermentation performance of the Yeast hybrids and parental strains towards bioethanol production.
- Extensively used the DNA technologies for molecular evidence between the hybrids and parents and to check the stability of the Yeast hybrids.
- Explored the different pretreatment methods on Sweet sorghum varieties SSV 19, SSV24.
- Studied bioethanol production from Sweet Sorghum biomass using developed hybrid Yeast strainto parental strain.

DST Project September 2016 - September 2019

Department of Science and Technology (DST) India, Women Scientist Scheme –A (WOS-A). Project: Enhancement of biofuel production from pentose sugars using genome shuffling by *Zymomonas mobilis* and *Pichia stiptis* using sweet sorghum.

SKILLS

Molecular Biology: Strain engineering, Genome shuffling, Protoplast fusion, Plasmid, and genomic DNA extraction, yeast and bacterial transformation, RNA extraction, Yeast fermentation, Polymerase chain reaction (PCR), and SDS PAGE gel electrophoresis, NGS.

Plant Tissue Culture: Preparing explant samples, Media preparation, Analyzing samples, and Sterilization techniques. Subculturing, Streaking, Preparing agar slants, and glycerol stocks, and Sterilization techniques.

Microbial Techniques: Maintenance of Yeast and bacterial cultures, aseptic techniques, Membrane Filtration & Isolation and maintenance of Microbial cultures (ATCC/NCTC positive and negative culture), Enumeration and detection of E.coli, Pseudomonas, Enterococci, Streptococci, Coliforms) Identification and characterization, Screening of bacterial and pathogenic microorganisms (like Legionella.).

BioProcess: Lab-scale fermentation techniques, Production of second-generation biofuels.

Soft Skills: Strong interpersonal skills, multi-tasking, ability to work independently or in a team, critical thinking, problem-solving, Excellent communication and presentation skills, technical writing, record keeping, laboratory management and purchasing inventories, equipment maintenance, safety, and strong work ethics.

PUBLICATIONS

- J. Karuna Devi, G.N.S. Ramesh Reddy, G. Deviram, and N. Sai Kishore. Improved ethanol productivity and ethanol tolerance through genome shuffling of *Saccharomyces cerevisiae* and *Pichia stipitis.* International Microbiology, pp 1-8, 2018.DOI:10.1007/s10123-018-00044-2. https://link.springer.com/article/10.1007%2Fs10123-

018-00044-2

- J. Karuna Devi and N. Sai Kishore. Construction of xylose assimilating yeast hybrids through genome shuffling. International Journal of Pharma and Biosciences. 2017 Volume 8 Issue 3, 2017 (July - September), pp: 873-881. DOI: http://dx.doi.org/10.22376/ijpbs.2017.8.3.b873-881.
- Sri Krishna Chaitanya.J*, Karuna. Devi Jetti, Gyana Prasuna.R. Assessment of microbiological species on selected inanimate surfaces in a pharmaceutical parental (sterile injections) manufacturing company. The Pharma innovation International Journal. 2018 Volume 7 Issue 9, pp:197-202.
- Sri Krishna Chaitanya.J*, Karuna. Devi Jetti, Gyana Prasuna.R Dynamics Of Water Purification Systems and Microbial analysis in Pharmaceutical Industry.International Journal of Pharmacy and Biological Sciences 8 (Issue 3), 569-578

ORAL AND POSTERS PRESENTED

- Paper has been accepted for Oral presentation during the 105th Indian Science Congress to be held in Osmania University, Hyderabad from January 03 to 07, 2018.
- Presented a poster during the 85th Annual Meeting of SBC held in CSIR-CFTRI, Mysuru, India in 2016.
- Presented a poster at an international conference on Emerging Biotechnologies organized by Kakatiya University in 2016.

AWARDS AND HONORS

- A Grant of 25,300 USD was awarded by the Department of Science and Technology (DST) India, under Women Scientist Scheme –A (WOS-A), Order No. SR/WOS- A/LS-1214/2015 (G) dt. 12.09.2016.
- Awarded Sr. M.Winifred Memorial Award for ‘All-Rounder Proficiency’ in graduation.