TWINKLE SONI

Junior Research Fellow
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ACTIVITIES AND INTERESTS

• Environmental conservation •Yoga • Hiking •Badminton • Travel

RESEARCH EXPERIENCE

JUNIOR RESEARCH FELLOW (JRF), GBRC (DST, GOG, INDIA) In UKRI-GCRF funded **"One Health Poultry Hub"**

NOVEMBER 2020 – PRESENT

Currently working as Junior Research fellow in an international project name "One Health Poultry Hub" sponsored by GCRF-UKRI grant. My job role in the project deals with the detection of Antimicrobial resistance gene (AMR) into poultry and human and culture of pathogenic microbes (Campylobacter, Salmonella and E. coli) obtained from poultry and human sample. The key responsibilities vary from being the wet-lab expert along with the bioinformatics data analysis of AMR gene. Preparation of AMR and 16s library and run set up on Illumina MiSeq. I am also involved in providing training on NGS a data analysis as a part of hub's human resource building https://www.youtube.com/watch?v=RBkeXOapHJE&t=2397s.
The other responsibility at GBRC is being Instrumental in-charge of Illumina MiSeq, Bioanalyzer etc. Other than the hub work GBRC comes under renowned "Indian SARS-CoV-2 Genomics Consortium (INSACOG)" is a multi-laboratory, multi-agency, Pan-India network to monitor genomic variations in the SARS-CoV-2 by a sentinel sequencing effort. As a part of that I had been involved in sequencing COVID genome using Ion Torrent S5 Plus system. We had submitted over 1000 COVID genome in NCBI out of which I am the first author in over 200 sequences https://covid.gbrc.res.in/. During the pandemic, I contributed in exploring emerging variants and was certified as a COVID-19 warrior.

DISSERTATION WORK DURING MASTERS

JANUARY-2020 – JUNE 2020

My masters work deal with the "Biocatalytic Extraction and Selective Conversion of Chitin into Glucosamine". The main objective of the study is to derive a consolidated method for chitin degradation to achieve high yields of glucosamine that can further be converted to ethanol. The following are the primary objectives of the present study.

1. Extraction and characterization of chitin from fungal mycelia and mushroom
processing waste
2. Production of glucosamine from the extracted chitin employing myco-chitozymes
3. Conversion of glucosamine into ethanol and yield calculations

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EDUCATION

MASTERS OF SCIENCE IN MICROBIOLOGY

GOLD-MEDALIST, DISTINCTION, CGPA: 8.56/10
SCHOOL OF LIFE SCIECNE, CENTRAL UNIVERSITY OF RAJASTHAN, AJMER, INDIA

BACHELOR OF SCIENCE IN BIOTEHNOLOGY

GOLD-MEDALIST, DISTINCTION, CGPA: 8.35/10
UNIVERSITY OF RAJASTHAN, JAIPUR, INDIA

INTERMEDIATE-HSC (2013)- 74.80%
SSC/10TH (2011)- 68.6%

Extracurriculam

President of Science department, Active member of student council, Active member of Vigyan Gurjari, Satsanskar sameeti and Akhil vishav gayatri parivaar

DISSERTATION WORK DURING BACHLOURS

JULY-2017 – JUNE-2018

My bachelors work deal with the" In-vivo antidepressant activity and in-vitro antimicrobial activity of leaf extract and active fraction from *Eicchornia crassipes*". The study was carried out to evaluate the antidepressant activity of aqueous extract of *Eicchornia crassipes* on forced swimming test and tail suspension test on Swiss albino rats after two weeks' treatment. After the entire study it can be concluded that the plant *Eicchornia crassipes* can be seen as a potential source of drug. The antimicrobial activity of plant fraction against Escherichia coli, Bacillus subtilis, Staphylococcus aureus and Aspergillus niger was studied and the best results were seen by fraction 5, fraction 7. The antidepressant like-effect of *Eicchornia crassipes* extract was tested. It improved the swimming ability of rats and biochemical parameters like serum urea, serum protein, serum cholesterol and serum creatinine.

RESEARCH WORK DURING BACHLOURS

SEPTMBER-2015 – JANUARY- 2017

I was working in the Biosensor lab, in Biyani Girls College, Jaipur, India. During the course of my work I visited Akita Prefectural University, Japan for two as a part of "International Collaborative Research Program". There I underwent the training for designing and fabrication of bio-portable devices. My job role in the lab was to design & fabricate portable UV Transilluminator along with the designing of portable UV cum Electrophoresis apparatus (8*9cm)

PUBLICATIONS

1. Amandeep Brar, Manish Kumar, **Twinkle Soni**, V Vivekanand, Nidhi Pareek
   Insights Into The Genetic And Metabolic Engineering Approaches To Enhance The Competence Of Microalgae As Biofuel Resource: A Review,Bioresource Technology,Volume 339,2021,125597,Issn 0960-8524,Https://Doi.Org/10.1016/J.Biortech.2021.125597.
2. Kumar Manish, Rajput Meenakshi, **Soni Twinkle**, Vivekanand Vivekanand, Pareek Nidhi
   Chemoenzymatic Production and Engineering of Chitooligosaccharides and N-Acetyl Glucosamine for Refining Biological Activities Frontiers in Chemistry Volume=8 Year=2020 Doi=10.3389/Fchem.2020.00469
3. Twinkle **Soni**, Mengchuan Zhuang, Manish Kumar, Venkatesh Balan, Bryan Ubanwa, Vivekanand Vivekanand, Nidhi Pareek
   Multifaceted production strategies and applications of glucosamine: a comprehensive Review Critical reviews in Biotechnology
4. Twinkle **Soni,** Ramesh Pandit, Chaitanya Joshi, Madhvi Joshi
   Comparative analysis of two NGS platforms and different databases for analysis of AMR gene. bioRxiv.

SCHOLISTIC ACHIEVEMENTS

Awarded 3rd prize in Quiz competition on "Global COVID Vaccine Production and Regulatory Challenges"	June 2021
Awarded gold medal for being university topper during masters	June 2020
Qualified Gate (Graduate Aptitude Test In Engineering)- Biotechnology	AIR-323 2020
Qualified CSIR-NET-JRF- Life Science	AIR-70 Dec 2019
TOEFL score	Score 92
Awarded first prize inn scientific photography competition	2019
Awarded medal for being one of the university topper during bachelors	2018
Awarded first prize in research proposal presentation- "AutoCAD IN BIOLOGY"	2016

SCIENTIFIC TALKS DELIVER

Deliver Hands On Training On AMR Data Analysis In "Molecular Techniques To Monitor And Investigate Antimicrobial Resistance"- Batch II	Sept 2021
Deliver Hands On Training On AMR Data Analysis In "Molecular Techniques To Monitor And Investigate Antimicrobial Resistance"- Batch I	Sept 2021
Delivered Lecture On Files And Sequence Formats In NGS During Workshop of "Basics Of Bioinformatics"	Sept 2021
Worked As Resource Person In Workshop of "Basics Of Bioinformatics"	Sept 2021
Presented Poster On "Pros And Cons of Phenotypic And Genotypic Methods Of AMR Detection" In International Virtual Conference on COVID 19 Pandemic: Role, Responsibilities And Challenges For Pharmaceutical Research, Industry And Academy	July 2021
Presented an expert lecture for online Training Module Funded By GCRF-STARS, UK On "Pros And Cons of Phenotypic Vs Genotypic AMR Profiling"	May 2021

SCIENTIFIC MEETING ATTENDED

International conference on Molecular basics of Disease & Therapeutics- ICMBT	08-10 March 2019
Workshop on "Scientific skills and Writing"	23-24 Sept 2016
Workshop on "Sensing in Minutes"	19 Oct 2016
11th India-Japan International conference "BIOCON-2016"	2016
Two week visit to Akita Prefectural university, Japan for "International Collaborative Research Program"	2015
10th India-Japan Bilateral conference "BIOCON-2015"	2015

SCIENTIFIC SKILLS

1. Scientific techniques

   • Microbiological techniques: Bacterial/ fungal isolations, Microbiome studies- human gut, animal gut and other, Isolation and characterization of Extremophiles, Isolation of microbes (bacteria and fungi) from air,

soil, water, human, animal and mushroom surfaces culture maintenance, Pathogen culturing (Campylobacter, Salmonella, E. coli), screening and identification, Microscopy (Phase contrast, Fluorescent, Bright field, Dark field and Compound microscope)

- Cell biology and Biochemistry techniques: Cellular quantification and basic cell culture techniques, Isolation and quantification of plant secondary metabolites by TLC, Column Chromatography, UV spectrophotometer, FT-IR, Enzyme kinetic studies and assay, Enzyme activity, extraction and purification process, optimization experiments, bioassays
- Molecular biology techniques: DNA, RNA and plasmid isolations, community DNA isolations, cloning, transformations, PAGE, PCR, qPCR, dPCR, Bioanalyzer, Primer designing, QIAcube, QIAxcel, QIAxpert/Nanodrop.
- Animal Models: Mice and Rat
- Next Generation sequencing: NGS library preparation for Ion Torrent and Illumina, Library for Transcriptome, WGS, Amplicon, Shot-gun and metagenomics, NGS run set up for both Ion Torrent and Illumina.

2. Informatics

- Tool usage and analysis of data (Genomic, Transcriptomic or Metagenomics) generated by next-generation sequencing.
- Understanding & usage of biostatistics and bioinformatics algorithms.
- Proficiency in statistical computation and data visualization using R program, Prism GraphPad and ChemDraw, AutoCAD.
- Well-versed with basics of programming languages like linux and R.
- Comfortable with working on various operating systems, including Windows, Linux or Unix.
- Expertise in Anti-Microbial resistance data analysis and WGS data analysis.

REFREES

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