

**DEPARTMENT OF
BIOTECHNOLOGY**

NEWSLETTER

Volume-2 | Issue-3 | March-2023

BIOGAZETTE

Echoing multidisciplinary perspectives



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Biotechnology



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Biotechnology

Vision

To produce higher caliber Biotechnologists to attain new heights in bioinformatics and bioprocess technology as per industrial needs and to provide leaders in the field of Biotechnology.

Mission

- To progress the department to attain center of excellence in bioinformatics and bioprocess technologies by providing best Undergraduate, Postgraduate, Doctoral programs and R&D activities within a decade.
- To develop special skilled training programs for graduates to meet the personality characters stipulated by the industries within a period of five years.
- To build potential biotechnologists capable of dealing with new challenges and socio-ethical implications.

B. Tech. Biotechnology

Program Educational Objectives

PEO-1. To produce Biotechnology graduates who will be employable in core Biotech/Pharma industries and domain-based software services.

PEO-2. To produce research-oriented Biotechnology graduates who will be employable in academic/Industry sponsored research and also who will be pursuing higher studies.

PEO-3. To produce bioentrepreneurs.

Program Outcomes

PO-1. Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

PO-2. Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO-3. Design / Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO-6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO-7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-9. Individual and team work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

PO-10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO-11. Project management and finance: Demonstrate knowledge and understanding of the engineering management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO-12. Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO-1: To make the students understand and apply the knowledge of computational systems biotechnology to design and develop biologics to meet societal needs.

PSO-2: To train the students to meet the requirement of bioprocess industries for developing techno-economical processes.

PSO-3: To empower the students with competent skill sets for bridging the gap between academia and the requirements of the healthcare industry.

M. Tech. Biotechnology

Program Educational Objectives

PEO-1: To prepare the students to excel and succeed in biotechnology research or industry through the latest state-of-art postgraduate education.

PEO-2: To train students with good scientific and technical knowledge so as to comprehend, analyze, design and adopt innovative and new technology that provides solutions for developing novel biotechnological products.

PEO-3: To create bioentrepreneurs with good communication and leadership skills, respect for authority and the life-long learning needed for a successful professional career.

Program Outcomes

PO-1: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

PO-2: An ability to write and present a substantial technical report/document.

PO-3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO-4: Ability to examine the technological problems in various domains of Biotechnology apply modern engineering tools for the prediction and modeling of complex engineering problems with a focus on sustainable development.

PO-5: Students should be able to acquire self-management and teamwork skills to collaborate with multidisciplinary teams from academic, industry and research institutes of national or international repute, with a commitment to lifelong learning.

PO-6: Potential to apply biotechnological solutions by adhering to the standards of bioethics with social responsibilities.

Program Specific Outcomes (PSOs)

After the successful completion of M.Tech. Biotechnology program, the students will be able to:

PSO-1: Demonstrate the biotechnology concepts and research approach and apply them for healthcare and industrial applications.

PSO-2: Possess scientific and technological skills to design and develop novel bioproducts for addressing biological and healthcare challenges.

PSO-3: Analyze the socio-economical needs and possess the necessary expertise to become a bioentrepreneur.

Events Organized

Guest Lecture

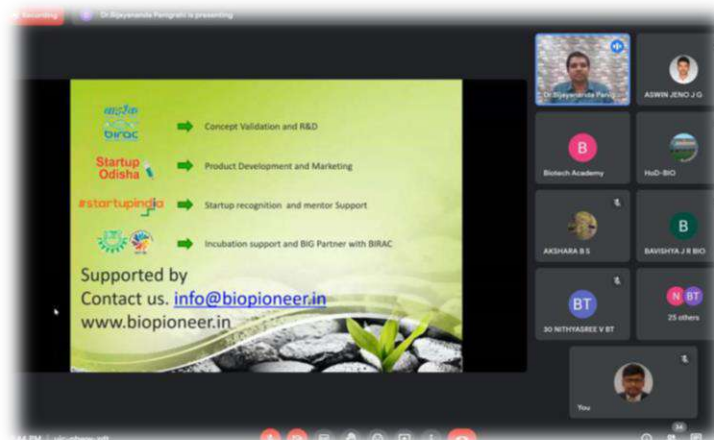
Protease Inhibitor – The first made in India product: A story behind the Innovation. 10th March 2023



**Dr. Bijayananda Panigrahi, Founder and Managing Director
Biopioneer, Odisha**

The guest lecture was conducted through online by Mr. J. Hariharan, Assistant Professor, Biotechnology and Mr. J. G. Aswin Jenö, Assistant Professor, Biotechnology with Prof. P. K. Praveen Kumar, Biotechnology as Organizing Secretary and Prof. M. Sivanandham, Secretary, SVEHT and Prof. E. Nakkeeran, Head of the Department, Biotechnology as Convener.

The session was started with introduction of the guest speaker. The event was celebrated in SVCE in commemoration of celebration of startup day activity. The main objective of the Guest Lecture was to motivate start-up activity to the students and faculties. He also initiated mentioning about the features of his patented product, protease and proteinase-K inhibitor. 35 Participants including UG, PG students and the faculty members from SVCE attended the event. The session was concluded with a vote of thanks delivered by Prof. P. K. Praveen Kumar.



Recent trends in AI and Data science in Biotechnology. 14th March 2023

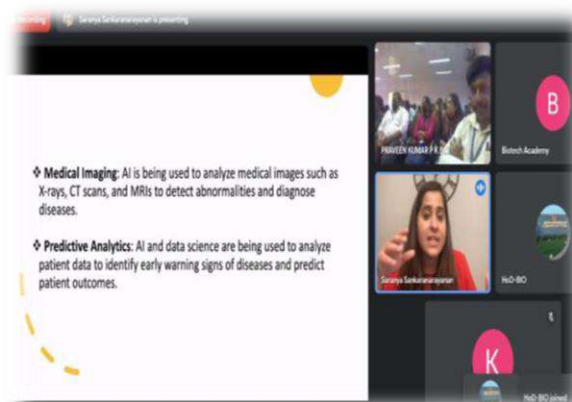


Ms. Saranya Sankaranaryanan
Principal Bioinformatician, Mayo Clinic, Minnesota

A guest lecture on "**Recent trends in AI and Data science in Biotechnology**" was organized by Department of Biotechnology, Sri Venkateswara College of Engineering, Sriperumbudur and IIC, SVCE at the Biotechnology Conference Hall, SVCE. The guest lecture was conducted by Ms. N. Kanagam, Assistant Professor, Biotechnology and Dr. J. Isaivani, Assistant Professor, Biotechnology with Prof. P. K. Praveen Kumar, Biotechnology as Organizing Secretary and Prof. M. Sivanandham, Secretary, SVEHT and Prof. E. Nakkeeran, Head of the Department, Biotechnology as Convener.

The session was started with introduction of the guest speaker. The main objective of the Guest Lecture was to motivate the importance of Artificial Intelligence and Data science approaches to the students and faculties. She encouraged the students and mentioned particularly that she can support students of SVCE by guiding project, providing internships.

54 Participants including UG, PG students and the faculty members from SVCE attended the event. The session was concluded with a vote of thanks delivered by Prof. P. K. Praveen Kumar. The Guest speaker, Ms. Saranya Sankaranaryanan finally thanked the organizers and the management of SVCE for organizing this event.



Understanding Fermenterphiles: By Integrating Multi-Omic Data with Bioprocess Development.

20th March 2023



**Dr. Suresh Sudarsan, Senior Program Manager
The Novo Nordisk Foundation Center for Biosustainability, Kongens Lyngby, Capital Region,
Denmark**

A guest lecture on "**Understanding Fermenterphiles: By Integrating Multi-Omic Data with Bioprocess Development**" was organized by Department of Biotechnology, Sri Venkateswara College of Engineering, Sriperumbudur at the Biotechnology Conference Hall, SVCE. The guest lecture was conducted by Dr. K. Ganesh Prasath, Assistant Professor, Biotechnology with Prof. V. Sumitha, Biotechnology as Organizing Secretary and Prof. M. Sivanandham, Secretary, SVEHT and Prof. E. Nakkeeran, Head of the Department, Biotechnology as Convener.

The session was started with a welcome address by Ms. S. Tharangini, II Year, B. Tech Biotechnology followed by the guest speaker introduction. The main objective of the Guest Lecture was the challenges of a production strain in comparison to the parent strain, an integrated multi-omic/ big data analytical approach to accelerate the strain/process development cycle and state-of-the-art methods/ scale-down tools to identify & select fermenterphiles for successful scale-up.

Participants including UG, PG students and the faculty members from SVCE attended the event with a total of 43. The session was concluded with a vote of thanks delivered by Mr. Kaaviya, II Year, B. Tech, Biotechnology. The Guest speaker, Dr. Suresh Sudarsan thanked the organizers and the management of SVCE for organizing this event.

Snapshots of the Guest Lecture on "Understanding Fermenterphiles: By Integrating Multi-Omic Data with Bioprocess Development"

20th March 2023



Higher Studies Update

GATE 2023 Qualified Students



Ms. RAJASHREE R
Final Year Student
Biotechnology

All India Rank (BT) - 195



Ms. MANASWINI V
Final Year Student
Biotechnology

All India Rank (BT) - 517



Ms. SRI NITHYA S
Final Year Student
Biotechnology

All India Rank (BT) - 517



Ms. LAKSHMI B
Final Year Student
Biotechnology

All India Rank (BT) - 600



Ms. RYTHIKA C
Final Year Student
Biotechnology

All India Rank (BT) - 1083



Ms. PREYADARSHNE T
Final Year Student
Biotechnology

All India Rank (BT) - 1083



**Ms. CHARU LEKHA
SARAYU Y**
Final Year Student
Biotechnology

All India Rank (BT) - 2362



Ms. NITHYASREE V
Third Year Student
Biotechnology

All India Rank (BT) - 2362

PG Admissions Abroad



Ms. Aakanksha Venkateswar (2019-2023)



MS Biotechnology at Northeastern University, Boston, USA



Mr. Anirudh J (2019-2023)

MS Bioinformatics at Northeastern University, Boston, USA



MS Bioinformatics (Biology) at Georgia Institute of Technology, Atlanta, USA



MS Biotechnology at Indiana University, Bloomington, USA

Ms. Shruthi V (2019-2023)



MS Biotechnology at Northeastern University, Boston, USA



**Mr Abhinav RA
(2019-2023)**

MS Biotechnology at Indiana University, Bloomington, USA



MS Biotechnology at Northeastern University, Boston, USA



**Ms. Gomathi T
(2019-2023)**

**MS Molecular and Cell Biology at University of Texas at Dallas,
Dallas, USA.**



MS Haripriyaa A S
(2019-2023)



LUND UNIVERSITY

**MS Molecular Biology, Molecular Genetics and Biotechnology at
Lund University, Lund, Sweden.**



Northeastern
University

MS Biotechnology at Northeastern University, Boston, USA

MS Biotechnology at Northeastern University, Toronto, Canada



Mr. Jhishnu Raj K
(2019-2023)



MS Biotechnology at Indiana University, Bloomington, USA



MS Biotechnology at University of Texas at Dallas, Dallas, USA



**Mr. Karthikeyan M
(2019-2023)**



LUND UNIVERSITY

MS Biotechnology at Lund University, Lund, Sweden



MS Biotechnology at Northeastern University, Boston, USA



**Ms. Manaswini V
(2019-2023)**



MS Biotechnology at Northeastern University, Boston, USA



**Mr. Nithin Raj S
(2019-2023)**



**MS Molecular and Cell Biology at University of Texas at Dallas,
Dallas, USA**



**Ms. Vanaja N
(2019-2023)**



MS Biotechnology at Northeastern University, Boston, USA

Research Activities

Publication of Research Article



Ms. N. Kanagam
Assistant Professor



JOURNAL OF NATURAL REMEDIES
DOI: 10.18311/jnr/2023/30943

RESEARCH ARTICLE

Microalgae: Nature's Green System to Recycle Waste to Resource

Kanagam Nachiappan^{1,2} and Rajasekaran Chandrasekaran^{1*}

¹Department of Biotechnology, School of Bio Sciences and Technology, Vellore Institute of Technology, Vellore - 632014, Tamil Nadu, India; drcrs70@gmail.com

²Sri Venkateswara College of Engineering, Sriperumbudur Taluk, Kancheepuram - 602117, Tamil Nadu, India

Abstract

Dairy wastewater management is a major concern for many milk-producing countries as it is a serious nuisance to the surroundings when disposed of untreated, increasing the organic load and foul smell. Microalgae remediation is an easy and cost-effective treatment to treat the effluent and simultaneously enhance a few agronomic traits. In this research, the phytoremediation technique was validated by treating dairy effluent using microalgal consortium and to study its impact on seed germination assay of *Vigna mungo* (Black gram). The results exhibited a significant increase in germination index, vigor index, and germination percentage when undiluted effluent was treated with microalgal consortium followed by other dilutions. Seedling growth was found maximum in 100% microalgal treated (TE100) undiluted effluent followed by 75% dilution (TE75), 50% dilution (TE50), 25% dilution (TE25), (TE0) treated effluent and compared with controls: water, effluent, fertilizer. So, we conclude that dairy effluent treated with suitable microalgae can be used directly for irrigation purposes to produce plants with high yield and significant biomass, indirectly making the industry a place of zero-waste discharge.

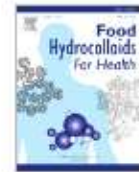


Ms. R. Linekha
Ph.D. Research Scholar
Biotechnology



Food Hydrocolloids for Health



Volume 3, December 2023, 100130



Valorization of surplus onion for the development and characterization of antioxidant-rich gummies

Krishnan Abinaya^a, Kumar Sharmila^a, Santhanvelayudham Priya^a, Marimuthu Ponmozhi^a,
Radhakrishnan Linekha^{a, b}  

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<https://doi.org/10.1016/j.fhfh.2023.100130> 

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Student/ Faculty Achievements

Guest Lecture by the faculty



Dr. Divakar K
Associate Professor

Dr. K. Divakar, Associate Professor, Department of Biotechnology delivered an invited guest lecture entitled "Applications of Molecular Phylogenetics - Successful Case Studies" on 30th March 2023 at VIT Vellore.

A PhD scholar guided by Dr. K. Divakar successfully defended PhD Viva-voce examination entitled "Metagenomic Bioprospecting of Microbial Enzymes for Environmental Applications" on 27th March 2023 at the Department of Biotechnology NIT Warangal.

Science Academies' Summer Fellowship Programme (SRFP 2023)

Ms. Harini B of the 2020-24 batch, B. Tech Biotechnology, has been selected for the prestigious **Science Academies' Summer Fellowship Programme (SRFP 2023)**. She has been selected to work under the guidance of **Prof. Surendra Kumar Sharma** at the **Department of Molecular Medicine, Jamia Hamdard Institute of Molecular Medicine, New Delhi**. She will be receiving a fellowship of Rs. 10,000/- per month for the duration of two months.

Conference



Ms. Nithyasree V
(2020-24 Batch)



Ms. Varshini K R
(2020-24 Batch)



Mr. Jayaraman R
(2020-24 Batch)

Mr. Jayaraman R, Ms. Nithyasree V, and Ms. Varshini K R of 2020 - 24 batch B. Tech Biotechnology participated in the International Conference on “**Embracing biotechnology for a sustainable future**” held at Rajalakshmi Engineering College on 10th and 11th, March 2023 and secured the first position in idea presentation on the topic “**Upcycling of plastic into biodegradable plastic**”. They also received a cash prize of Rs. 1000.



Mr. Deva S
(2021 - 23 Batch)

Mr. Deva S of 2021 - 23 batch M. Tech Biotechnology participated in the International Conference on “**Embracing biotechnology for a sustainable future**” held at Rajalakshmi Engineering College on 10th and 11th, March 2023 and secured the second position in idea presentation on the topic “**Artificial intelligence in the assessment of the toxicity of Indian herbal medicines**”. He also received a cash prize of Rs. 700.

Poster Presented

Ms. Dhakshini S S, Kamali S, and Kimaya G of 2020 -24 batch B.Tech Biotechnology participated in a poster presentation competition on the topic “**Anthroposols to increase water retentivity of soil for land reclamation**”, at the International Conference on “**Embracing biotechnology for a sustainable future**” held at Rajalakshmi Engineering College on the 10th and 11th, March 2023.

Ms. Ananya R C and Ms. Lavanya J of 2020 -2024 batch B.Tech Biotechnology participated in a poster presentation competition on the topic “**Wound healing potential of *Calotropis gigantea*, a bioactive medicinal product**”, at the International Conference on “**Embracing biotechnology for a sustainable future**” held at Rajalakshmi Engineering College on the 10th and 11th, March 2023.

Workshop

Ms. Sadhakshi B, Ms. Surnamalaya S R, Mr. Aadhan G A, and Mr. Gurucharan J K of 2020-24 batch, B.Tech Biotechnology, attended a two-day offline workshop on “Vaccine Technology” conducted by Ethical Edufabrica Pvt. Ltd. In association with PRAVEGA, IISc Bangalore on 18th – 19th March 2023.

Extracurricular

Ms. Aparrajitha V of the 2020-24 batch, B.Tech Biotechnology, secured the second position in a face painting competition named, “What a Look”, conducted at Instincts 2023 – A National level cultural fest organized by SSN College of Engineering and Shiv Nadar University Chennai on 9th – 11th March 2023.

Mr. Jayaraman R of the 2020-24 batch, B.Tech Biotechnology, secured the second position in the treasure hunt event conducted during Yuktha 2023 at PSG Institute of Technology and Applied Research, Coimbatore on 20th March 2023 and 21st March 2023.

Ms. Jyotsna R, of the 2020-24 batch, B.Tech Biotechnology, secured the third position in a dance competition called “Step-Up” conducted on the occasion of Women’s Day on 8th March 2023.

Industry Visit Organized

B. Tech Biotechnology (2020-24 Batch)



Industrial Visit to Synkromax Biotech Pvt Ltd, Kurmavilasapuram Panchayat, Athipattu Village, Thiruttani Taluk, Thiruvallur District” was arranged for the III year B. Tech Biotechnology was arranged on 16th March 2023. Through this industrial visit, our students will learn about bioprocess operations and industrial-scale production of microbes (for fertilizers and enzymes).



Events attended by the Faculty

- ✓ Mr. S. Nagavignesh attended a 5-Days Online FDP program on Inculcating Universal Human Values in Technical Education organized by AICTE from 30th January to 3rd February 2023.
- ✓ Mr. J. G. Aswin Jenö attended a 5-Days Online FDP program on Inculcating Universal Human Values in Technical Education organized by AICTE from 30th January to 3rd February 2023.
- ✓ Dr. K. Divakar attended the “Workshop on Chemoinformatics for Drug Discovery” (WCDD-2023) held from 15-18th March 2023, Organized by Centre for Biotechnology, Anna University Chennai.

SVCE Innovates 2023

The Students of the Department of Biotechnology showcased their innovative ideas, prototypes, models, and research work as posters on SVCE INNOVATES-2023. The winners are as follows,

First Prize

- ✓ Ms. Abhi Sherlin – M. Tech Biotechnology (2021-2023)

Title: Cosmeceutical perspective of Marine Polysaccharides skin aging applications.

Supervisor: Dr. G. Karthigadevi

Second Prize

- ✓ Mr. R. Bharadwaj – M. Tech Biotechnology (2021-2023)

Title: Bael Fruit Juice with Nano-dispersed Beta-carotene.

Supervisor: Dr. K. Vasantharaj

- ✓ Ms. Harini S, Ms. Kamalavarshini B - B. Tech Biotechnology (2019-2023)

Title: Computational binding studies of Withanolide A on mitochondrial targeting of HSP90 in Hepatocellular Carcinoma based on network pharmacology approach.

Supervisor: Dr. P.K. Praveen Kumar

Third Prize

- ✓ Ms. Akshara B S, Ms. Kaaviya V, Ms. Nivashini Vindhya - B. Tech Biotechnology (2020-2024)

Title: Bioremediation of Dairy Effluent using Phycopods: A novel approach.

Supervisor: Ms. N. Kanagam

- ✓ Ms. Gaayathri M, Ms. Sulakshuna B - B. Tech Biotechnology (2021-2025)

Title: Testing the Effects of Poppy Seeds on Human Health for the Treatment of Cancer.

Supervisor: Mr. J. G. Aswin Jeno

Alumni Write-up



Ms. Sandhya V (PG 2018-2020)
PhD Scholar
ICMR-NIRT, Chennai

The days I spent on my colleges always be my most memorable one in my life. With the training programs conducted in my colleges like communication skill development, soft skill programs, changed the way of becoming professional.

I cracked three national level exams (GATE, CSIR-LS and DBT-JRF) for getting into Ph.D programme. Currently, I'm doing Ph.D in ICMR-National Institute for Research in Tuberculosis.



Mr. Raghul Kumar M (UG 2009-2013)
Scientist I
M/s. Thermo Fisher Scientific, Bengaluru

SVCE is a very special college and I had a lot of fond memories associated with it. In addition to having the most qualified faculty and excellent facilities for Research and training, the management always goes an extra mile in ensuring the students are happy and in their well-being. I wish the entire management of SVCE and the present and future students the very best

DEPARTMENT OF BIOTECHNOLOGY
SRI VENKATESWARA COLLEGE OF ENGINEERING



COURSES OFFERED

1. B.Tech Biotechnology
2. M.Tech Biotechnology
3. M.S. (By Research)
4. Ph.D. Biotechnology

A GLIMPSE OF OUR MAJOR FACILITIES



YOUNGLIN 9000 GRADIENT HPLC SYSTEM

**FOR
FURTHER DETAILS
OR
ENQUIRIES**

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