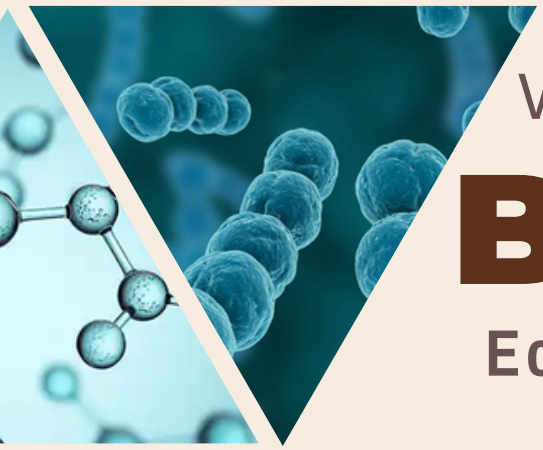
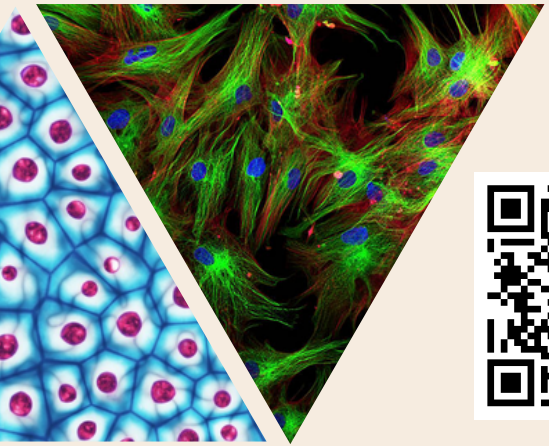




Sri Venkateswara College of Engineering

DEPARTMENT OF BIOTECHNOLOGY

NEWSLETTER

Volume-2 | Issue-1 | January-2023

BIOGAZETTE

Echoing multidisciplinary perspects

EDITORIAL TEAM

DR. M. SIVANANDHAM
Secretary, SVEHT
Visiting Professor
Biotechnology

DR. E. NAKKEERAN
Professor and Head
Biotechnology

DR. K. DIVAKAR
Associate Professor
Biotechnology

DR. K. GANESH PRASATH
Assistant Professor
Biotechnology

MR. J. G. ASWIN JENO
Assistant Professor
Biotechnology

MS. N. VANAJA
Final Year Student
Biotechnology

MS. R. JYOTSNA
III Year Student
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)

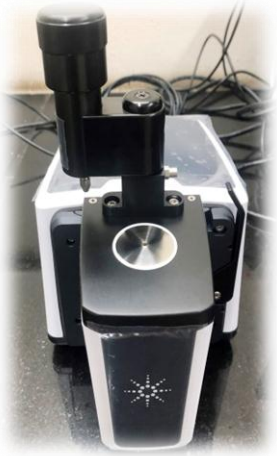
After the successful completion of M.Tech. Biotechnology program, the students will be able to:
PSO-1: Demonstrate the biotechnology concepts and research approach and apply them for healthcare and industrial applications.
PSO-2: Possess scientific and technological skills to design and develop novel bioproducts for addressing the biological and healthcare challenges.
PSO-3: Analyze the socio-economical needs and possess the necessary expertise to become a bioentrepreneur.

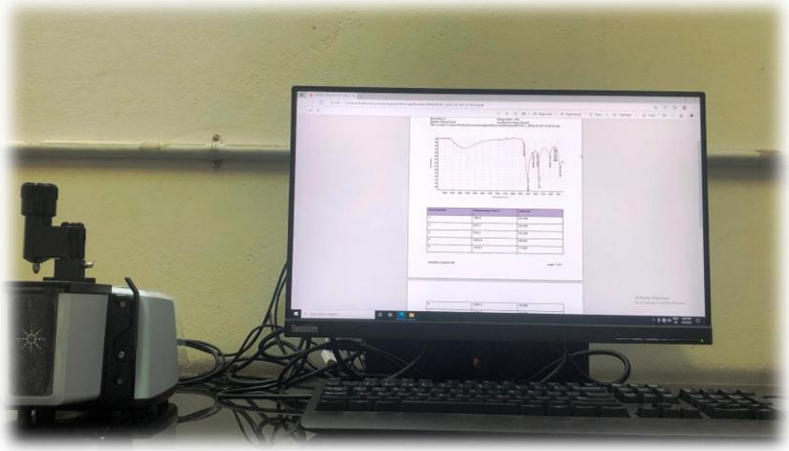
Recent Addition to our Instrumentation Facilities

Fourier Transform Infra-Red (FTIR) Spectrometer

Model: Cary 630 FTIR Spectrometer

Make: Agilent





Specifications:

Compliance Software	MicroLab Pharma Software
Control Software	Microlab
Resolution	≤ 2 cm-1
Sample Type	Solids, Liquids, Films, Gels
Sampling Module	Diamond-ATR
Specular reflectance	45 degrees
Spectral Range	7,000 to 350 cm-1

Consultancy / Testing Services (FTIR Requisition Forms)

Internal Users: https://forms.gle/SosTtQ8cueitYJw36

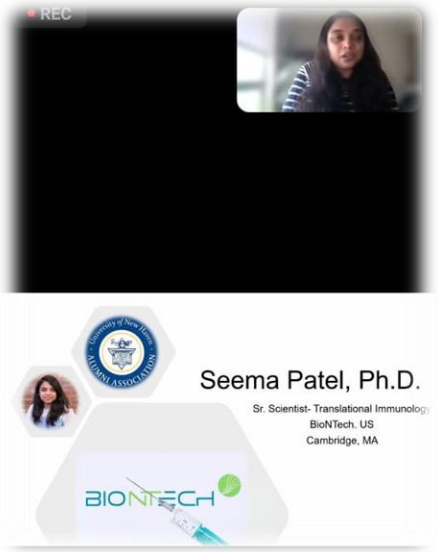
External Users: https://forms.gle/b4rHVwp29gduvnrD8

Events Organized

Guest Lecture

Course and Careers in Cellular and Molecular Biology in the US

09th January 2023, 6.30 PM to 7.30 PM (IST)



The Department of Biotechnology, SVCE and Global education and career forum (GECH) have conducted a webinar under the aegis of the "Indo-US Higher Education and Careers Summit 2022-2023". At the outset, we acknowledge the leadership of Mr. Navin Mittal IAS, Commissioner of Collegiate and Technical Education, Government of Telangana, and Chair of GECF and Mr. V. Balakrishnan IPS Chair, GECF Tamil Nadu Chapter. The guest speakers are as follows,

- Dr Seema Patel Ph.D, Scientist in Translational Immunology at BioNTech. USA.
- Mr. Murali Reddy M.S, Lead Research Scientist and Development Specialist at Regeneration Pharmaceutical, USA.
- Ms. Namratha Pabbati M.S, Scientist III at Thermofisher Scientific, USA.
- Mr. Arun Thimmaraju M.S, Senior Data Scientist at Interpace Biosciences, USA.
- Ms. Dawn Alderman M.S, Senior Director MSE Antibodies, Proteins Strategy at Abcam, USA.
- Dr. Eva Sapi, Professor and Coordinator MS Cellular and Molecular Biology, Department of Biology and Environmental Science, University of New Haven, USA.

Alumni Interactions

Alumni interaction on "International Graduate Application"
19th January 2023, 10.00 - 11.00 AM (IST)

- **Dr. Rajeshwar Nitiyanandan Research Scientist, SageMedic Corporation, California, USA**

The Department of Biotechnology of Sri Venkateswara College of Engineering has organized an Alumni interaction on "International Graduate Application" by Dr. Rajeshwar Nitiyanandan, Alumni (2007-2011 batch), Cancer Research Scientist, SageMedic Corporation, California, USA on 19th January 2023 (Thursday) at 10.00 - 11.00 AM (IST).

Higher Studies Update

Ms. Aakanksha Venkateswar (2019-2023)

MSc Infection and Immunity at University College London, UK

Ms. Jhishnu Raj K (2019-2023)

PSM Bioprocesssing and Bioenergy at University of Illinois, Chicago, USA

Ms. Sarvika P M (2019-2023)

MS Medical Biotechnology, at University of Illinois, Chicago, USA

Ms. Shruthi V (2019-2023)

MS Medical Biotechnology, at University of Illinois, Chicago, USA

Ms. Gomathi T
(2019-2023)

MS Biotechnology, New York University, USA

Ms. Anirudh J
(2019-2023)

MS Genetics, Genomics and Bioinformatics at University of Buffalo, USA

Research Activities

Publication of Research Article

Mr Jhishnu Raj K
(2019-2023)

Dr. K. Vasantharaj
Assistant Professor

Mr Abhinav RA
(2019-2023)

Mr. K Jhishnu Raj and **Mr. RA Abinav** have participated and presented a paper entitled "Bioethanol Production: Establishing the potential of brown macroalgal biomass of *Hydroclathrus clathratus* as sustainable feedstock" under the guidance of **Dr. K. Vasantharaj, Assistant Professor, Biotechnology** in 37th Indian Engineering Congress organized by Institution of Engineers (India) held at Hotel Le Royal Meridian, Chennai during December 16th -18th, 2022.

37th Indian Engineering Congress 2022
Role of Engineers for Creating a Sustainable and Self Reliant India

IEC/2022/088/CH07

Bioethanol Production: Establishing the Potential of Brown Macroalgal Biomass of Hydroclathrus clathratus as Sustainable Feedstock

Jhishnu Raj K , Abhinav R A and Vasantharaj K*

Department of Biotechnology, Sri Venkateswara College of Engineering, Sriperumbudur, Tamil Nadu
*kvasantharaj@gmail.com**

***Abstract**: One of the most promising alternative fuels to address the current energy crisis is bioethanol. Algal biomass has been deemed more favourable for bioethanol production due to the existence of low lignin and hemicellulose concentration in contrast to lignocellulosic biomass. The present investigation focuses on establishing the suitability of brown macroalgae Hydroclathrus clathratus as carbon source to produce bioethanol through fermentation. The macroalgal biomass collected from Mandapam coastal waters was preprocessed using acid hydrolysis to obtain the hydrolysaterich in fermentable sugars. The amount of glucose in the fermentable sugars was estimated using DNS (3,5-Dinitrosalicylic acid) method and found to be 1.2 mg/ml.Further, the presence of major chemical groups in polysaccharides (1000 cm^{-1}) was confirmed through Fourier Transform Infrared (FTIR) Spectroscopy. An anaerobic fermentation was carried out by the culture Saccharomyces cerevisiae using the hydrolysate as feedstock. The ethanol concentration from the distillate of the fermentation broth was determined using potassium dichromate method and found to be 0.4 g/ml. The ethanol production was also verified through Gas Chromatographic analysis and estimated that 16.65 g/L of bioethanol has been produced. Thus, the brown macroalgal biomass of Hydroclathrus clathratus was successfully established as potential feedstock for bioethanol production.*

Ms. Gomathi T
(2019-2023)

Ms. Anirudh J
(2019-2023)

Mr. **Anirudh J** and Ms. **Gomathi T** of IV year, B.Tech Biotechnology have published a review paper entitled 'Keloids: A Review of the Diseases, Causes, and Current Treatments at Journal of Pharmaceutical Research International.

Journal of Pharmaceutical Research International

Volume 34, Issue 53A, Page 1-15, 2022; Article no.JPRI.93409
ISSN: 2456-9119
(Past name: British Journal of Pharmaceutical Research, Past ISSN: 2231-2919, NLM ID: 101631759)

Keloids: A Review of the Diseases, Causes, and Current Treatments

J. Anirudh [a], T. Gomathi [a*], P. L. Sujatha [b], P. Devendran [c] and K. Anbu Kumar [c]

[a] Department of Biotechnology, Sri Venkateswara College of Engineering, Sriperumbudur, India.
[b] Department of Library Sciences, Madras Veterinary College, Chennai, India.
[c] Department of Bioinformatics, Madras Veterinary College, Chennai, India.

Students/ Faculty Achievements

Conference

Mr. Bharadwaj R
(2021-2023)

Mr. Bharadwaj R (Register Number: 2127210211003) of II year M.Tech Biotechnology (Batch 2021-23) has presented a poster entitled "Nanodispersions of Beta-Carotene: Preparation Methods, Characterization and Health Benefits" in an International Conference on "Innovations In Food and Beverage Technology for Sustainable Future" organized by College of Food and Dairy Technology, Tamilnadu Veterinary and Animal Sciences University under the supervision of Dr.K.Vasantharaj, Assistant Professor, Department of Biotechnology, SVCE.

Mr. Udayarajan Y
(2020-2024)

Ms. Vardhini B
(2020-2024)

Ms. Vardhini B and Mr. Udayarajan Y of 2020 - 2024 batch B. Tech Biotechnology, under the guidance of Dr. V. Sumitha, Professor, Department of Biotechnology presented a poster entitled "Marine Polysaccharide Based Engineering Scaffolds For Tissue Engineering" in the International conference on Innovations in food and beverage technology for sustainable future, conducted by Tamil Nadu veterinary and animal sciences University, College of Food and Diary technology, from 4th - 6th January 2023.

Republic Day 2023 Celebration

Cdt. Jeevitha G of NCC- Air Wing and I year B. Tech Biotechnology (2022-2026) has participated in the parade along with Dr. K. Ganesh Prasath, NCC-Air Wing CTO and Assistant Professor, Department of Biotechnology during Republic day celebration on 26th January 2023.

YRC Mega Awareness

Prof. E. Nakkeeran, Head of the Department, Biotechnology chaired as a Judge for a poster presentation event in the YRC mega awareness program organized by YRC SVCE Unit from 26th – 31st January 2023.

Internships

- Ms. Akshara B S, Ms. Dhakshni S S, Ms. Nithyasree V, Ms. Sadhakshi B, Ms. Varshini K R, Mr. Aditya Krishnan, Mr. Nithishwaran K S of 2020-24 batch B.Tech Biotechnology, have attended 14 days Internship at CSSR - Siddha Central Research Institute in the Department of Pharmacology from 6th - 25th January on animal dissection, animal handling, urolitheasis and pharmacology analysis.
- Ms. Jyothishree, Ms. Madhumitha K, Ms. Madhumitha Rao M, Ms. Rupika Rajendran, Mr. Gurucharan J K of 2020-24 batch B. Tech Biotechnology have attended two weeks internship at TANUVAS on "Molecular biology and Animal cell culture".
- Ms. Harini B, Ms. Maanasa M and Mr. Thapasvi Anirudhan Hriteesh of 2020-24 batch B. Tech Biotechnology have attended two weeks internship at Madras Diabetes research foundation on "Cell culture and Immunoblotting techniques".
- Ms. Magdalene P and Ms. Nivashini Vindhya S of 2020-24 batch B. Tech Biotechnology, have attended an in-plant internship at SDMRI - Suganthi Devadason Marine Research Institute in "Marine Biotechnology" from 31st December 2022 - 14th January 2023.
- Ms. Ananya R C and Ms. Anu rashmi G of 2020-24 batch B. Tech Biotechnology, have attended an in-plant internship at Aavin milk factory, Ambattur on "Quality control techniques" from 5th - 14th January 2023.

Workshop

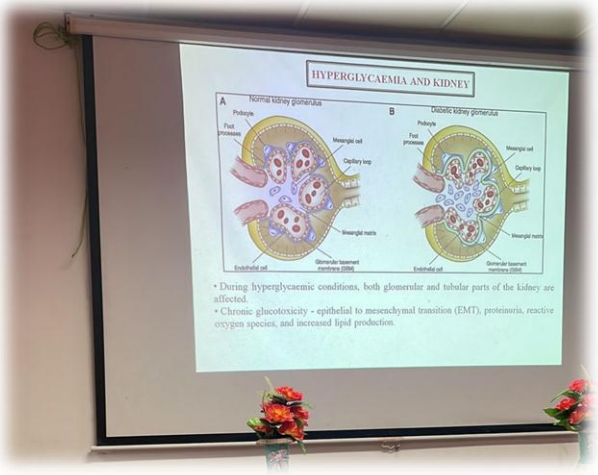
- Ms. Rajavarsini R and Mr. Srihariharan A S of 2020-24 batch B. Tech Biotechnology have attended a 5-days workshop at Bioinformatics Centre, Madras Veterinary College on the topic "Trends in microbial and animal genomics" from 09th - 13th January 2023.
- Ms. Jyotsna R of 2020-24 batch B. Tech Biotechnology has attended a 7-days workshop at Sathyabama University, International research centre on the topic "Molecular Biological techniques and Software Packages" from 5th - 12th January 2023.
- Ms. Dharshini N S, Ms. Janani Harikrishnan, and Mr. Jayaraman R of 2020-24 batch B. Tech Biotechnology have attended a 5-days workshop at TANUVAS on the topic "Trends in Microbial and Animal genomics" from 09th - 13th January 2023.
- Ms. Ananya, Ms. Anu rashmi and Ms. Kimaya of 2020-24 batch B. Tech Biotechnology attended a three day workshop at CIIC (Crescent Innovation & Incubation) & TICEL BIOPARK on the topic "Micropropagation techniques" from 23rd - 25th January 2023.

Events attended by the Faculty

1. Dr. E. Nakkeeran, Dr. S. Pandi Prabha and Dr. K. Divakar participated in the Faculty Development program- The Art of Living (Capacity Building for Productivity Enhancement) during 9th - 11th January 2023.

2. Students of Biotechnology Department showcased the scientific models in the science expo event "Ab-Initio" arranged for school students during 23rd - 25th January 2023.

3. Dr. Isaivani J, presented her research work to the faculty member of Biotechnology during the journal club meeting on 25th January 2023.



4. Dr. E. Nakkeeran, Dr. S. Pandi Prabha and Dr. K. Divakar participated in the AICTE sponsored workshop on " Gender audit in Higher Education Institutes: The Why and How? during 27th - 28th January 2023.

5. Mr. N. Sathish has attended 5-days Industrial training from 23rd – 27th January 2023 at Innovative Healthcare Private Limited, Maduranthagam.

Alumni Write up

SVCE was, is and will be one of the elite colleges in Tamil Nadu and the Biotechnology Department is one of the premier departments under Anna University. Our Department has state of the art facilities and gave me detailed insights on Biotechnology. Our faculties had not only taught the courses but gave hands on experience on the nuances of Biotechnology.

Mr. TPS Baratwaj (UG 2010-2014)
Business Development coordinator
M/s. Syncfusion, Chennai

For getting into SVCE, I had a good cut-off score (191.75) in my XII board (this is where my choice of XII group came into play) and got into the last seat available at that time during AU Counselling.
I was primarily a part of CARE, Eco club of SVCE and Phoenix, the college magazine. Apart from these we had Departmental organizations like Students' Biotech Forum and ISTE-SVCE (International Society for Technical Education), of which I was an active participant.

Ms. Dhanya R (UG 2011-2015)
PhD Scholar
IIT Madras, Chennai

Upcoming Events

- Department of Biotechnology, SVCE has planned to organize a national level 24 hours Hackathon HACK O'BIOLICS during 23rd - 24th February 2023.

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

RECENT ADDITION TO OUR FACILITIES

AGILENT TECHNOLOGIES - CARY 630 BENCHTOP FTIR SPECTROMETER