



# Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE

(Deemed to be University with Special Autonomy Status)

Maduravoyal, Chennai - 600 095, Tamilnadu, India.

(An ISO 9001-2015 Certified Institution)

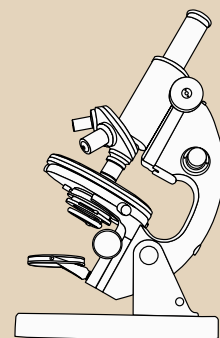
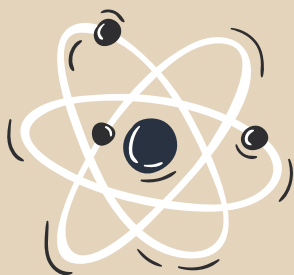
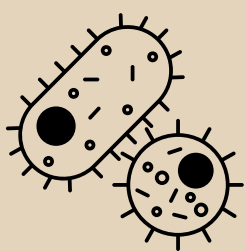


— DEPARTMENT OF BIOTECHNOLOGY —

PRESENT'S

# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022

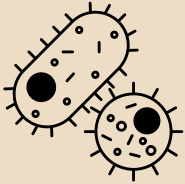




## DEPARTMENT OF BIOTECHNOLOGY

# BIobyTES NEWSLETTER

BT-Q2- 22 JUNE 2022



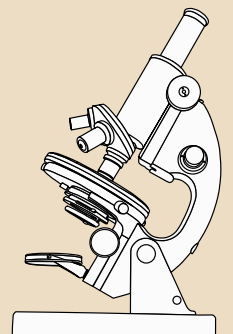
## DEPARTMENT VISION & MISSION

### VISION

To strive towards the innovative knowledge in the domains of biotechnology for the development of new processes and product useful to the society and enrich economy.

### MISSION

- To impart knowledge and skills in the biological sciences to improve human health, protect environment and to enrich economy.
- To provide an outstanding environment to learn for facing the global need in the fields of Biotechnology.
- We focus on excellence in teaching and research as well as to promote entrepreneurship





**DEPARTMENT OF BIOTECHNOLOGY**

**BIOBYTES NEWSLETTER**

BT-Q2- 22 JUNE 2022

**PROGRAM EDUCATIONAL OBJECTIVES OF THE DEPARTMENT**

PEO No.	Program Educational Objectives Statements
<b>PEO 1</b>	<ul style="list-style-type: none"> <li>Pursue higher studies or involve themselves in R&amp;D activities in Biotechnology Industries and related organizations</li> </ul>
<b>PEO 2</b>	<ul style="list-style-type: none"> <li>Be a successful entrepreneur in creating jobs related to health science and Biomedical Society.</li> </ul>
<b>PEO 3</b>	<ul style="list-style-type: none"> <li>Promote ethics, sustainability, social environmental responsibility in their profession and career.</li> </ul>

List of Program Outcome for the program Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

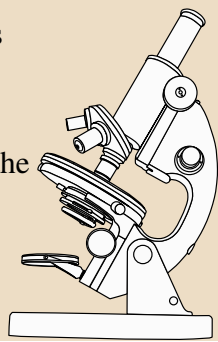
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: 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.





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## **PROGRAM EDUCATIONAL OBJECTIVES OF THE DEPARTMENT**

**PO7: 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.

**PO8: 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.

**PO10: 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.

**PO11: Project management and finance:** Demonstrate knowledge and understanding of the engineering and 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.

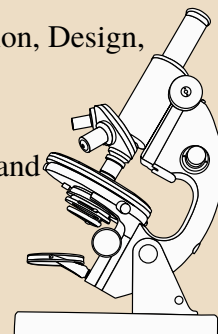
**PO12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change holders (Industry experts, and with the other reputed universities) have been received.

### **LIST OF PROGRAM SPECIFIC OUTCOMES (PSOs)**

**PSO1:** Ability to Apply knowledge of basic Life sciences for Biotechnological innovation and promoting entrepreneurship

**PSO2:** Proficiency to develop value-added Biotechnological products through implementation, Design, optimization, and scale-up of Biotechnological processes.

**PSO3:** Competency to promote Biotechnological research in the fields of biomedical, food and environment-related fields and also to publish papers in highly reputed journals





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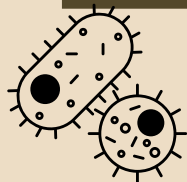
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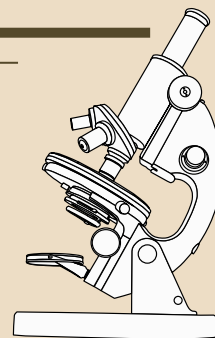
# BIobyTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## DESK MESSAGE

**Dr. Rajeswary Hari**  
**HOD of Biotechnology Department**



The Department of Biotechnology was started in the year 2003 with an objective of generating trained manpower in Biotechnology with disciplinary skills from Chemical engineering, Computer Science and Management Skills. Biotechnology is the application of Biology for industrial purposes such as development of vaccines, biomaterials reducing toxic waste by using microbial or enzyme based processes, development of new drugs for treating emerging and reemerging diseases, development of newer diagnostic methods for diagnosis of human diseases, development of crops with additional productivity or added advantages etc. The Research focus in our Department Involves methods to reduce environmental pollution by using micro organisms, identifying the plant products which can be used to treat diabetes, fasten the wound healing processes; understanding the role of SNP in critical gene in the development of cancer; and monitoring and understanding the mechanisms of antibiotic resistance in bacteria. The Dept. is supported by grants from the SERB, DST, DBT & CSIR .The department is motivating the students and faculties to actively involve in research programme and also to publishish articles in national and international journals & Conference The Department offers B.Tech and M.Tech Programs in Biotechnology, M.Tech in Medical Biotechnology and Ph.D. programs also.

*Rajeswary Hari*

**HOD Sign**



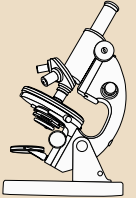
## DEPARTMENT OF BIOTECHNOLOGY

# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## ACHIEVEMENTS



We are very proud to publish the department newsletter "BIOBYTES". To this end, we first attend a variety of external events and works, creating great moments to recognize award winning students.

PhD scholar achievement:

We are pleased to announce that Gomathi Baskar, a PhD scholar, was awarded in the category of "Young scientist" at the International conference on Nanovision 2022 "Emerging trends in nanotechnology and biotechnology" held at the SGVU-Biotechnology Business Incubator (SGVU-BBI) & School of Applied Sciences Suresh Gyan Vihar University Mahal Road, Jagatpura, Jaipur, Rajasthan on 19th & 20th April 2022 under the guidance of Dr.P.Thirunavukkarasu.



Varsheni Nagarajan from B.tech Biotechnology 3rd year participated in the NGWA Water challenge and our start-up team has been selected for the Acceleration Scholarship Award worth 1000 Euros participating in the AIM-ICDK 2.0 Water Innovation Challenge in partnership with Niti Aayog and Atal Innovation Mission Official.

We are excited to share that our student Narendran Ashwanth of 4th yr BT dept earned admission for Master of Science at the University of Texas, Dallas US. We are pleased to extend our gratitude for his bright future.

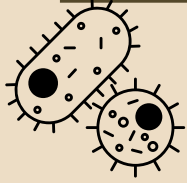
3rd yr student Sarath (Bsc. BT) participated in "Two days National workshop and Training program on BIOSAFETY level-III lab training and Ethanomedical Plants in recent trends" and won 1st prize in quiz, conducted by dept of genetics, Madras University on 21&22 of April 2022.



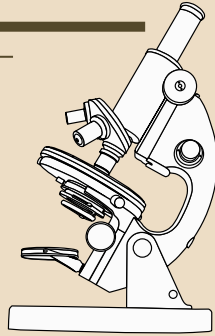
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# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## RESEARCH & INNOVATIONS



### Glad to list our Research projects

Study on synthesis of seaweeds mediated gold nanoparticles for anti-cancer activity through EMT signaling pathway in Lung cancer by Dhayan chand, Mohammed fahad ahmed, Nithin under the guidance of Dr.P.Thirunavukkarasu

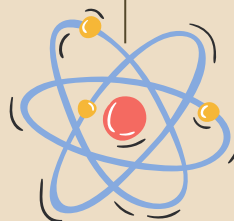
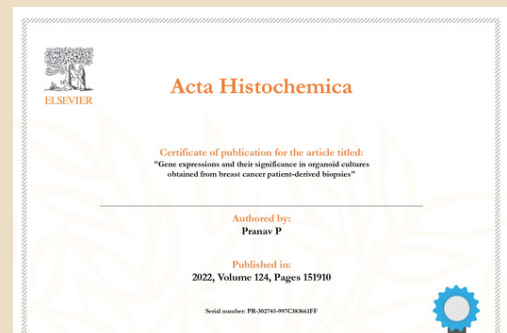
Best project :

We are glad to announce the finest project of our department, which was completed under the supervision of Ms. Shanmugapriya by students M.Sai kumar, R.Balaji, and M.Bharath kumar Reddy on the theme "Detection of lung cancer from CT image using SVM classification and compare."

Under the guidance Dr.Gomathi (Dean of BT dept), students Narain Ashwanth, Roshan Antony, Shruti done a project on Nanoparticles impregnated Oryza sativa L. indica-aleovera based biomaterial preparation, properties.

Our Biotechnology student Pranav P was the first B.tech student to publish a paper in the Elsevier Journal "Acta Histochemia" which was published in 2022, volume 124, pages 151910 on the topic "Gene expressions and their significance in organoid cultures obtained from breast cancer patient-derived biopsies."

Final yr students Yugalya, Vishnupriya and Priyadharshini placed 1st in our IBT project Design and Implementation of Saline Monitoring using GSM technology guided by Gnanamoorthy (Assistant Professor)

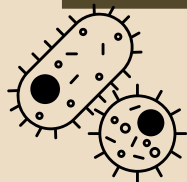




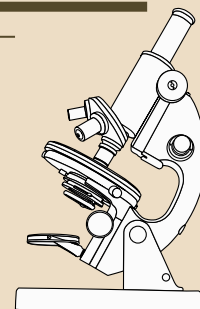
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# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## STUDENT CORNER

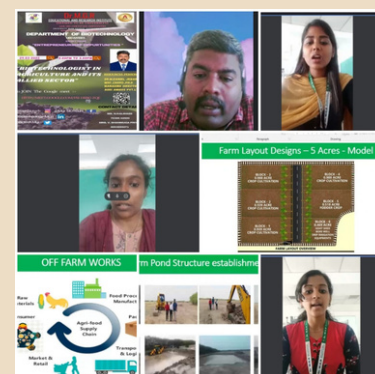


D.A.Lalith Kumarr, 2nd yr B.tech, participated in the Open WHO course on the topic "Antimicrobial Stewardship: A competency-based approach" on 9th April,2022. Achieved Record on Key Considerations for SARS-CoV-2 antigen RDT implementation on 30th March,2022.



## EVENT CORNER

The Department held an event called "Expert Talk" where alumni from Dr. MGR Educational and Research Institute, Dr. M. Daniel Jebaraj M.Sc. Agri., Managing Director of Agri amigos Pvt Ltd., spoke to the current students to discuss opportunities in the agricultural field and to improve their knowledge and skills in allied fields. "Entrepreneurship opportunities for biotechnology in agricultural and its allied sectors" was the topic of the discussion. The Speech was followed by welcome Address by Priyadarshini and Poojitha . It was a highly engaging discussion, and aarthi's vote of thanks brought the gathering to a conclusion.





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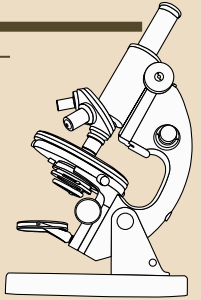
# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## ALUMINI CORNER

### PENTA Reunion



The MGR Alumni Association held a reunion for the 2017 passed out batch after 5 years for the first time at our university. This was a novel endeavour as a trial to hold the reunion after 5 years instead of the customary 10 years. Everyone who attended this event will remember it fondly as a huge success. Commenced with the welcome speech and dance, after which the alumni in presence happily recounted their memories. Our university's expertise is demonstrated by the fact that alumni work in a variety of industries, including R&D, entrepreneurship, the film industry, IT parks, and others. This event was planned to serve a significant purpose for both current and future students in addition to serving as an alumni reunion.

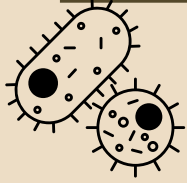
We are grateful to Dr. Rajeswari Hari, Head of the Biotechnology Department, for her unwavering support during this event, which was a wonderful success. We also want to express our sincere gratitude to Ms. Aishwarya and Mr. Cyril, the alumni coordinator and ambassador, for their unwavering assistance.



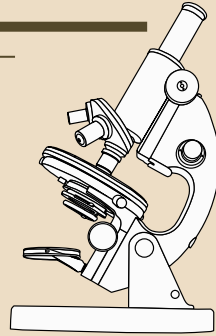
## DEPARTMENT OF BIOTECHNOLOGY

# BIOBYTES NEWSLETTER

BT-Q2- 22 JUNE 2022



## STAR OF Q2



## VARSHENI NAGARAJAN

We are delighted to publish the star person of our department, ever passionate Mrs. Varsheni Nagarajan, studying (UG) 4th year B.tech BT at our esteemed Dr.MGR Educational And Research Institute. Participated and selected in IIT PALS Innawah competition under the title name "Amvyrad Greenrich-BARCO" and granted with 25,000 INR to develop a Poc. The project has been awarded as "Incubation worthy" in the finale. Project BARCO has been selected for NewGen IEDC project and funded with 2,50,000 INR to develop a prototype. Participated in the NGWA Water challenge and our start-up team has been selected for the Acceleration Scholarship Award worth 1000 Euros participating in the AIM-ICDK 2.0 Water Innovation Challenge in partnership with Niti Aayog and Atal Innovation Mission Official.

As we all are familiar with the impacts of water hyacinth plants, however finding a promising solution has been quiet a journey for us. We communicated with area engineers who found our idea exciting because they were also working on the same solution for quiet a few years and they added that the machine called ambibient which they used to run cost them around 1.5 crore. So basically we needed their help but they needed a promising solution which gave us the permission to test on site. We are currently working on advanced structure of BARCO. We have been simultaneously posting pictures and videos of our work in various social media platforms like LinkedIn and Instagram for starters and we are planning to expand it through advertising in our website. From the collected plants we've made various paper products.

In short term we'll be able to develop a compact and easily accessible product and create a small scale employment sector to work on paper and cloth making. And in long term we'd like to replace the high cost weed harvesting machines with BARCO and avoid human intervention like hand pulls and pitch forks.



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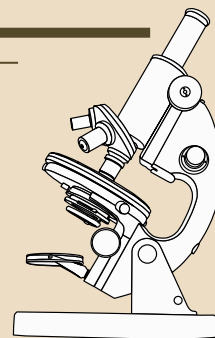
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BT-Q2- 22 JUNE 2022



## SUCCESS STORIES



### ANTONY ROSHAN

We are delighted to share the success story of one of our biotechnology department's final year students, Mr. Antony Roshan, whose lifelong ambition is to become a scientist, with the hope that his ideas and breakthroughs will benefit people in the greatest way possible. Mr. Antony Roshan has gone to great lengths to ensure that his aim of becoming an accommodating scientist does not remain a pipe dream. Mr. Antony Roshan has gone a long way to pave the greatest path for himself. To begin with, he and 1000 other students from various government and private schools and universities across India actively participated in the "Femto satellite launch" travelled to Rameshwaram to volunteer as satellite launch ground staff members and successfully launch 100 FEMTO satellites. In exchange, the students received awards for the Guinness world record, the world record, the assist world record, the Asia record, and the Indian record. Consequently, he is currently a member of the 75 students Satellite project, among the 36 students from our college he was the only one from Biotechnology's final year and the satellite will be launched on the 75th independence day in the presence of the honourable Prime Minister. He also earned first place in a district level wildlife quiz competition, the Young Scientist Award, and first place in a model making project competition organised by Annai Violet Arts and Science College and was chosen for the central government's inspire prize, and designed his agriculture robot also was a part of state level competition. He was a zonal level runner up in shuttle badminton in both the junior and senior categories. He worked on his final year project "The characterization and evaluation of antimicrobial study of niosomes loaded Abies webbiana ethanolic leaf extract" with Jagadeesh and Noxin Jancy Riveon.



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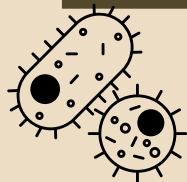
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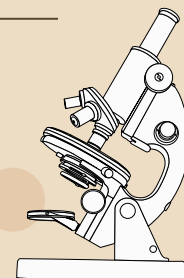
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BT-Q2- 22 JUNE 2022



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