KAMARAJ®

COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C.Nagar, K.Vellakulam - 625 701 (Near Virudhunagar), Madurai District.

TECHMAG

DEPARTMENT OF BIOTECHNOLOGY

2024 - 2025

EDITORIAL BOARD

ER. AMUTHALAKSHMI,
ASP/ BT

MS. R.B.AKSHAYA,
II- BT

MS. K. MUKILA,
II- BT

MS. J. MARISHA CHRISTINE STISHA,
II-BT

VISION AND MISSION

VISION

To make the Department of Biotechnology, unique of its kind in the field of research and development activities pertaining to the field of biotechnology in this part of the world

MISSION

To impart highly innovative and technical knowledge in the field of biotechnology to the urban and rural student folks through "Total Quality Education"

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

- **PEO 1 :**The student will be able to pursue higher education in India/Abroad in Biotechnology and its related fields by taking up competitive exams like GATE, CSIR, TANCET, GRE, TOEFL etc..
- **PEO 2 :** The student will be able to come up with solutions for any scientific or technical problems related to Biotechnological industries/institutes.
- **PEO 3 :** The student will be able to plan and conduct experiments in modern the significance of resulting data, reporting results and writing technical reports.
- **PEO 4 :**The student will be able to get familiarized wini tbhi otepchronfoelsosgioyn anl d faonstde r imecpoonr such as communications and experience in working as a team that will help them to become good Entrepreneurs.

PROGRAM SPECIFIC OUTCOMES (PSO) - R2021

- **PSO1 :** Future ready graduates : The student will be able to identify, choose and perform to their best ability in next career step: Higher education/Job/Entrepreneurial initiatives. **PSO2 :** Industry ready graduates: The student
- will be able to apply the acquired knowledge to provide cost-effective and sustainable solutions in Biotechnology.

PROGRAM OUTCOMES (PO)

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.

DPOes3ig :n D seosilgunti o/ ndse vefolorp mcoemntp olefx s oelnugtiionnese r:i ng 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 modeling 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.

PO7 : Environment and sustainability: Understand the impact of 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. **PO9 :** 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.

ABOUT DEPARTMENT

In recent years, Biotechnology has experienced significant progress, emerging as a forefront domain of research and development, profoundly impacting society. Dr. A. P. J. Abdul Kalam once recounted an experience from his time at Anna University, Chennai, where a patent was secured for a novel molecule derived from an herb with anti-cancer properties. This breakthrough stemmed from collaboration between a Biotechnologist and a traditional Siddha medical practitioner. The Department of Biotechnology was established in 2002, marking the beginning of a transformative journey. Our department achieved several milestones, commencing with the initiation of the Undergraduate Programme (B.Tech) in 2002 with 40 seats, later expanded to 60 seats in 2005, earning accreditation from NBA - AICTE New Delhi from the same year onwards. Government funding agencies such as AICTE, DRDO, DBT, BARC, and TNSCST have generously supported our research endeavours, providing funds exceeding one crore rupees. The department has excelled in organizing conferences, workshops, and Faculty Development Programs funded by national agencies like DBT, DST – SERB, and the National Biodiversity Authority. Renowned for its distinguished publications spanning Environmental Biotechnology, Drug Discovery, Lichenology, Food Technology, Biopolymers, and Biofuel Research, the department has cultivated a reputation for excellence. We facilitate placements at esteemed institutions including ZIfo R&D Solutions, Avantor Sciences, Quintacent, and Episource. Our faculty members, qualified through CSIR, JNU, and GATE, further enrich our academic environment with their expertise and dedication. Alumni of distinction are employed across a spectrum of global enterprises, including Morgan Stanley, Marea Iceland, Sartorius, Lonzo, and more. Accredited by NBA - AICTE New Delhi from 2008 onwards.

BIOTECH MAG 2024 - 2025

The Department of Biotechnology stands as a beacon of innovation, seamlessly intertwining biology and technology to revolutionize fields from waste management to life-saving medical advancements. With a 360° scope, it embraces a diverse spectrum of disciplines, including agriculture, biochemistry, cell biology, genetics, immunology, and informatics, fostering ground-breaking research and real-world solutions. Established in 2002- 2003 with the B.Tech program, the department expanded its academic horizon by introducing M.Tech in 2009-2010 and earning the prestigious recognition as a Centre for Research by Anna University in 2011. Today, it offers B.Tech and Ph.D. programs, nurturing a dynamic ecosystem of scholars and innovators. With an investment of 7.5 crore rupees, our state- of-the-art laboratories—ranging from cell biology, molecular biology, and bioprocess technology to immunotechnology and bioinformatics—are equipped with cutting-edge instruments such as the rotary vacuum evaporator, orbital shaker incubator, photo bioreactor, foam fractionation column, bio spectrometer, and pH meter, alongside sophisticated equipment like HPLC, ELISA reader, fluorescence microscope, PCR, bioreactors, ultra sonicator, lyophilizer, and AKTA Prime Purification System. These world-class facilities empower researchers to explore frontiers in drug discovery, environmental biotechnology, biopolymers, and biofuels, contributing to a sustainable and healthier future. With robust industry collaborations, we ensure exceptional placement opportunities in leading organizations such as Zifo R&D Solutions, Avantor Sciences, Quintacent, and Episource, while our illustrious alumni thrive in esteemed enterprises like Morgan Stanley, Sartorius, and Marea Iceland. The Department of Biotechnology continues to push the boundaries of science, shaping bright minds, fostering cutting- edge research, and paving the way for a future driven by sustainable solutions and transformative discoveries.

INDEX

GENE ASSOCIATION ACTIVITIES

Application of Biotechnology in stem cell research – Dr. Gowripriya, Scientist, Aravind Medical Foundation, Madurai on 20th July, 2024, our department had the privilege of hosting an enlightening guest lecture for third- year students on the topic "Application of Biotechnology in Stem Cell Research."

Ms. S. Nagajothi, alumnus of 2017-21 batch, currently clinical trial coordinator and ethical committee coordinator, delivered a special lecture on clinical trial: protocols, opportunities and policies to III and IV BT students

Mr.Akash, Deputy Manager, Aavin, Srivilliputtur Objective of the activity(100 words) :To motivate the students in the field of dairy products processing and to provide awareness on TNPSC exam for Deputy Manager in Aavin.

ALUMINI INTERACTION

The event "Interdisciplinary Insights: Bridging Data Science and Biotechnology" was held on July 31, 2024, from 11:00 a.m. to 12:30 p.m., attended by 41 participants from Biotechnology (BT) and 59 participants from Artificial Intelligence & Data Science (AI & DS). This event was organized by Mr. K. Palani Kannan, a Clinical Bioinformatics Researcher, specializing in Empowering AI Innovation in Omics Data, based in Abu Dhabi Emirates, UAE.

The event "Higher Study Opportunities Abroad" was held on August 2, 2024, from 12:00 p.m. to 1:00 p.m., attended by 53 participants from II BT. This event organized by Ms. S. Sindhuja, a Postgraduate student (M.S. in Molecular Biol at the University of Queensland, Australia.

Alumni interaction was conducted by Department of Biotechnology for all third and final year students Alumni Name: Deepa Aravind Batch: 2004 - 2008 Topic: Scope of BT in Abroad

Er. B. Sathish Kumar (2016 - 2020) - SRF, YENEPOYA Medical University, Mangalore Interacted with II and III Year Biotechnology Students on 20/01/2025.

VALUE ADDED PROGRAM

III YEAR- BT

A five days Industry Certified Value Added Programme entitled **"Comprehensive Trail In Revolutionary Drug Design : Pre- Clinical Research Methodology"** was organized by Department of Biotechnology, Kamaraj College of Engineering and Technology, Virudhunagar, in association with **A-Cube substrate and Globloom Bio innovation hub lab** from 8th July to 12th July 2024 for **III** B.Tech Biotechnology students.

II year- BT

A five days Industry Certified Value Added Programme entitled **"Algal Technology and Applications"** was organized by Department of Biotechnology, Kamaraj College of Engineering and Technology, Virudhunagar, in association with **"SEA2FARM"** for **II** B.Tech Biotechnology students.

GUEST LECTURE DELIVERED

Dr.S.Karthikumar, ASP/BT, delivered a guest lecture to IIC members at Department of Microbiology, P.S.G college of Arts and Science, Coimbatore on 29/7/24

Dr. R. Shyam Kumar Prof/ Head of BT, delivered a special lecture to "Students at department of Microbiology, P.S.G College of Arts and science, Coimbatore on 29/07/24

Dr. D. Pradiba, AP/ BT acted as resource person and delivered a guest lecture on "Cracking Competitive Exams" at Dr. Zakir Husain College, Ilayangudi, Sivagangai on 09/09/2024.

INDUSTRIAL VISIT TO HYDERABAD
III YEAR

EXPLORING BIOTECH FRONTIERS: INDUSTRIAL VISIT TO HYDERABAD Bridging Theory and Practice in Biotechnology As part of our academic curriculum, the third-year Biotechnology students embarked on an exciting two-day industrial visit to Hyderabad from August 12 to August 13, 2024. The visit aimed to enhance our understanding of cutting-edge research and industrial applications in biotechnology by exploring Indian Immunologicals Ltd. and the Centre for DNA Fingerprinting and Diagnostics (CDFD).

DAY 1: UNLOCKING THE WORLD OF VACCINES Our journey began with a visit to Indian Immunologicals Ltd. (IIL), a pioneer in vaccine development. We were welcomed by industry experts who introduced us to the production of vaccines for both humans and animals, including the renowned Foot-and-Mouth Disease (FMD) and Anti-Rabies vaccines. The interactive session highlighted the company's vision—"Affordable Immunity with Good Quality"—and its commitment to world-class production standards. We also gained insights into career prospects in research, quality control, and production. The industry professionals emphasized the importance of staying updated with the latest biotechnology trends and technological advancements to excel in the field.

DAY 2: DECODING DNA AT CDFD The second day took us to the Centre for DNA Fingerprinting and Diagnostics (CDFD), where we explored the fascinating world of genomics and molecular diagnostics. Experts at CDFD introduced us to DNA fingerprinting, forensic applications, genetic disorder screening, and plant genome analysis. A guided tour of the research facility gave us a firsthand look at state-of-the-art instruments such as Real-Time PCR, DNA Sequencers, and Confocal Microscopes. The session also provided insights into internship and research opportunities, inspiring many of us to consider careers in genetic research and diagnostics.

BEYOND THE LAB: A TOUCH OF HYDERABAD Apart from our academic exploration, we had the opportunity to immerse ourselves in the cultural and historical richness of Hyderabad. We visited Charminar, explored the bustling markets, and enjoyed an evening at Lumbini Park and Inorbit Mall. This industrial visit was a perfect blend of learning and adventure, offering a deeper appreciation of biotechnology's real-world impact. With new insights and inspiration, we returned with a renewed passion for our field, eager to apply our knowledge in future endeavors.

Student Interaction | Faculty Interaction

Visit to various Sections of IIL | Visit to various Sections of IIL

Visit to CDFD, Hyderabad | Expert talk at CDFD

Lab visit at CDFD | Lab visit at CDFD

INDUSTRIAL VISIT TO OOTY II YEAR

INDUSTRIAL VISIT TO OOTY: A JOURNEY OF LEARNING AND DISCOVERY Exploring Innovations in Agriculture & Tea Production As part of our academic curriculum, we embarked on an enriching two-day industrial visit to Ooty from October 4 to October 5, 2024. The visit aimed to deepen our understanding of pasture management, fodder production, and sustainable agricultural practices, while also exploring the art of tea production—an integral part of the Nilgiris' heritage.

DAY 1: INSIGHTS INTO LIVESTOCK NUTRITION AT PASTEUR INSTITUTE Our journey began at 10:00 AM as we departed from our hotel, reaching the renowned Pasteur Institute by 10:40 AM. After securing the necessary permissions, we were welcomed into the lecture hall for an informative orientation session. The Pasteur Institute in Ooty plays a vital role in livestock nutrition research, focusing on pasture development and fodder production. We learned about various species of grasses, innovative cultivation techniques, and their impact on livestock productivity. The session also shed light on the institute's contribution to sustainable agriculture and the rural economy. Moreover, we explored career and research opportunities available for graduates in this field, making the visit both insightful and inspiring.

DAY 2: A CLOSER LOOK AT TEA PRODUCTION The second day took us to a well- established tea factory, where we explored the fascinating world of tea processing and business management. The visit commenced with an engaging session on the history of tea plantations in the Nilgiris region, setting the stage for an immersive experience. A guided tour through the factory unveiled the intricate steps of tea production, from the arrival of fresh tea leaves to their final packaging. One of the most fascinating processes we witnessed was withering, where fresh leaves lose moisture to prepare for further processing. Beyond the technical aspects, we also gained valuable business insights, understanding how quality control, branding, and market strategies shape the tea industry.

A BLEND OF KNOWLEDGE AND EXPERIENCE This industrial visit was a perfect blend of academic learning and real-world exposure, allowing us to bridge the gap between theory and practice. The insights gained from the Pasteur Institute and the tea factory enriched our perspective on agriculture, sustainability, and industry operations. As we returned from this memorable journey, we carried with us not just knowledge, but inspiration—a motivation to explore new frontiers in biotechnology, agriculture, and industrial research.

STUDENT ACHIEVEMENNTS

Ms. Sakthi Shivani, III BT won 1st prize in Yogasana championship held at Kanchipuram

Mr.N.Mohana Kannan, Mr.B.Sabari Raj, and Mr.S.Muthu Ganesh, IV BT have received Firstprize of Rs.5000 in NEC Startup Entrepreneurship Summit (NECSES)- 2024 Ideathon held at NEC, Kovilpatti during 23-24, August 2024

Ms. Gowri, III BT has got 1st prize in Individual and rhythamic Yoga competition held at Virudhunagar organized by Virudhunagar District Yogasana Association.

Ms. Sakthi Shivani, III BT has got 2nd prize with cash award of Rs. 8000 in Khelo India Yoga competition at zonal level.

Mr. Harikrishan and Mr. Dharsan, IV BT won third prize in group dance and Mr. Dharsan, IV BT won third prize in solo dance at Mepco Schlenk Engineering College, Sivakasi.

Mr.K.Abinanthan, Mr.R.Pugazhenthi, Mr.G. Selva murugan, III year BT won III prize in sports event "Anna University zonal Hockey tournament" organised by SSM institute of engineering and technology on 23.09.2024

Our College Boys Basket Ball team won II place in the Anna University 17th Zone Inter Collegiate Basket ball tournament held at Chettinad College of Engineering, Karur.

Mr.Sanjayveera.S, II year BT was selected in all india treking expedition AP trek at Tirupati

Mr.Sivaganesh, IV BT won II place in sports event "Anna University Zonal Tennis tournament" on 26.09.2024

Ms.S.Jeyaprincy, III BT, Got II prize for duo dance with cash prize of 500 in Hindusthan institute of technology.

Mr. Dharsan, Mr. Santhosh Kaveri, and Mr.Yogadharsan, IV BT won I prize in the paper presentation competition at Kongunadu College of Engineering, receiving a cash prize of ₹3,000.

Ms.Yagna Devi, IV BT has been selected for Summer Project at NIIST, Thiruvananthapuram.

INPLANT TRAINING

Sl.No	Academic Year	Batch	Name of the Student	Name of the Industry/Institute	Number of Days	Nature of Training	Subject relevance (Name the Subject)
1.	2017 - 2018(ODD)	2016 - 2020	R.yAamaithili	[illegible]Rajasiddha	1 to 2 days	Manufacturing & processing unit in Ayurveda products & siddha	Analytical Methods & Instrumentation
2.	2017 - 2018(ODD)	2016 - 2020	M.Monika	Sudhikshaprabhu multi speciality hospital	1 to 2 days		Biochemistry
3.	2017 - 2018(ODD)	2016 - 2020	Darthiba P.S		1 to 2 days		Biochemistry
4.	2017 - 2018(ODD)	2016 - 2020	V.Swathy	Spirulina production research and training Centre	1 to 2 days	Spirulina technical exposure	Industrial Biotechnology
5.	2017 - 2018(ODD)	2016 - 2020	S.DeepaTharini		1 to 2 days	Spirulina technical exposure	Industrial Biotechnology
6.	2017 - 2018(ODD)	2016 - 2020	S.Hari Lakshmi		1 to 2 days	Spirulina technical exposure	Industrial Biotechnology
7.	2017 - 2018(ODD)	2016 - 2020	S.PriyaDharshini		1 to 2 days	Spirulina technical exposure	Industrial Biotechnology

8.	2017 - 2018/ODD/	2016 - 2020	V.Swathy	Indian Foods	3 - 7 days		Biochemistry
9.	2017 - 2018/ODD/	2016 - 2020	A.JeyaPriya		3 - 7 days		Biochemistry
10.	2017 - 2018/ODD/	2016 - 2020	V.B Nivethitha		3 - 7 days		Biochemistry
11.	2017 - 2018/ODD/	2016 - 2020	S. Nivruthi	Southern petrochemical industries corporation Limited	3 - 7 days	Quality control	Analytical methods of instrumentation
12.	2017 - 2018/ODD/	2016 - 2020	M.Kanmani		3 - 7 days	Quality control	Analytical methods of instrumentation
13.	2017 - 2018/ODD/	2016 - 2020	P.Mahaswari		3 - 7 days	Quality control	Analytical methods of instrumentation
14.	2017 - 2018/ODD/	2016 - 2020	A.Vinnarasi		3 - 7 days	Quality control	Analytical methods of instrumentation
15.	2017 - 2018/ODD/	2016 - 2020	P.Akshayasri	Rajshree Biosolutions LLP	3 - 7 days		Biochemistry
16.	2017 - 2018/ODD/	2016 - 2020	S.Shylin Sharon		3 - 7 days		Biochemistry
17.	2017 - 2018/ODD/	2016 - 2020	S.Hari Lakshmi		3 - 7 days		Biochemistry
18.	2017 - 2018/ODD/	2015 - 2019	R. Niranjini	Nova Carbons	3 - 7 days	Quality control	Bioorganic Chemistry
19.	2017 - 2018/ODD/	2015 - 2019	B.LakshmiPriya		3 - 7 days		Bioorganic chemistry
20.	2017 - 2018/ODD/	2015 - 2019	C.Janaki		3 - 7 days		Bioorganic chemistry
21.	2017 - 2018/ODD/	2015 - 2019	M.Sindhu		3 - 7 days		Bioorganic Chemistry

22.	2017 - 2018(ODD)	2016 - 2020	M.PoneGayathiri	Laxmi Industries	1 to 2 days		Industrial Biotechnology
23.	2017 - 2018(ODD)	2016 - 2020	K.Gopik a	Kadalkanny frozen foods	3 - 7 days		Industrial Biotechnology
24.	2017 - 2018(ODD)	2016 - 2020	M.Harita	Antenna trust	1 to 2 days	Spirulina production	Industrial biotechnology
25.	2017 - 2018(ODD)	2016 - 2020	S.Deepatharini	Raja Sidhaamarundagam	3 - 7 days	Manufacturing & processing unit	Industrial biotechnology
26.	2017 - 2018(ODD)	2015 - 2019	S.R.Abinayasri	AK Seaweeds	3 - 7 days	Seaweed harvest, processing, extraction, purification strategies	Industrial Biotechnology
27.	2017 - 2018(ODD)	2016 - 2020	P.Narayani	Raja Sidhaamarundagam	3 - 7 days	Manufacturing & processing unit	Industrial biotechnology
28.	2017 - 2018(ODD)	2016 - 2020	S.Priyadharshini		3 - 7 days	Manufacturing & processing unit	Industrial biotechnology
29.	2017 - 2018(ODD)	2015 - 2019	G.Janaki	SS Biotech	3 - 7 days	Biochemical and Microbiological analysis of Spirulina powder	Industrial Biotechnology
30.	2017 - 2018(ODD)	2016 - 2020	A.Kavithakani	M/S .Nila Sea Foods (p)Ltd	3 - 7 days	Plant sanitation, Personnel hygiene, preprocessing, record maintenance, quality control and microbiological works	Industrial Biotechnology
31.	2017 - 2018(ODD)	2016 - 2020	S.Amaithipriya	Raja Sidhaamarundagam	3 - 7 days	Manufacturing & processing unit	Industrial biotechnology
32.	2017 - 2018(ODD)	2016 - 2020	S.Deepatharini	Indian tropical agro products Ltd	3 - 7 days		Food biotechnology
33.	2017 - 2018(ODD)	2016 - 2020	S.Privadharshini		3 - 7 days		Food biotechnology
34.	2017 - 2018(ODD)	2016 - 2020	S.AmaithiPriya		3 - 7 days		Food Biotechnology
35.	2017 - 2018(ODD)	2016 - 2020	V.B.Nivethithi	Spirulina Production Research and Training Centre	1 to 2 days	Hands-on training	Industrial Biotechnology
36.	2017 - 2018(ODD)	2016 - 2020	M.PoneGayathiri		1 to 2 days	Hands-on training	Industrial Biotechnology
37.	2017 - 2018(ODD)	2016 - 2020	S.AmaithiPriya		1 to 2 days	Hands-on training	Industrial Biotechnology
38.	2017 - 2018 (EVEN)	2016 - 2020	V.B.Nivethithi	Anna University	1 to 2 days	Organic farming	Industrial biotechnology
39	2017 - 2018 (EVEN)	2015 - 2019	G.Janaki	Aravindh herbal labs (p) Ltd	3 - 7 days	analytical and microbial testing of commercial productsindustrial fermentation herbal products	Analytical methods of herbal

CONFERENCE PRESENTED

NATIONAL LEVEL

S.No.	Name of the faculty and co-authors	Title of the paper	Tile of the conference	Date	Venue of the conference	National/International conference	Sponsored by, if any
1	S R Santhosh Kaveri , K Dharsan, S YogaDharshan	3D printing using cellulose extracted from floral wastes	Emerging Trends in Biological Sciences (NCETBS)	06-09 -2024	SRM Institute of Science and Technology	National	-
2	M Sasi Balan	[illegible]	[illegible]	07-01-2025	Department of biotechnology of St.Joseph's College on	National	-
3	K Abinanthan, VK Vibhu Purushoth , V N Haresh	Cyanobacteria for Aluminium Removal: A sustainable approach to effluent treatment and resource recovery	New Paradigms in Biotechnology and Sustainability	07-01-2025	Department of biotechnology of St.Joseph's College on	National	-

INTERNATIONAL LEVEL

S.No.	Name of the faculty and co-authors	Title of the paper	doilnef eorfe tnheee	Date	Venue of the conference	National/International conference	Sponsored by, if any
1	L Priyadharshini , J Saron merline , S Varshini S R Santhosh	Petin infused Bioplastic for Greener Future		04-10-2024	Vivekananda Institute of Management studies	International	-
2	Kaveri , K Dharsan, S YogaDharshan	3D Bioprinting using cellulose extracted from floral wastes	Sustainable Technologies in Health and Environment	18-10-2024 to 19-10-2024.	Scinicon Labs	International	-
3	V Veeralakshmi , S B Jeevasri , M Divya	Development of a Natural Skin Burn Healing Lotion Using Ricehusk, Banana Peel, Calendula,and Chamomile Tea	Biosummit - 2025	31-01-2025	Hindustan Arts and Science College, Coimbatore	International	-
4	J Marisha Christine Stisha, J Puvina Jasmine , S Aparna , S Swetha	Creation of Smart Sensor Account for Metanil Yellow Adulteration in Food Items	Biosummit - 2025	31-01-2025	Hindustan Arts and Science College, Coimbatore	International	-
5	S. Jeyaprincy , B R Akshaya	EcoScrub: Sustainable Pineapple peel Rice Exfoliating soap	Biodiversity and climate change	13-02-2025 to 14-02-2025	St.Xaviers college,Palyamkottai	International	-
6	V Vishwapriya	[illegible]	CBiloimdiavteer Cs[illegible]	[illegible] to 14-02-2025	St.Xaviers college,Palyamkottai	International	-
7	K P Rathi	PEST CONTROL: Harnessing Chrysanthemum Floral Waste for Eco – friendly Biopesticides	Biodiversity and Climate Change	13-02-2025 to 14-02-2025	St.Xaviers college,Palyamkottai	International	-
8	J Vaishnavi Rishikaa	Optimizing cyanobacterial exopolysaccharides for edible nano coatings in meat preservation	Translational research on biomedical sciences	19-02-2025 to 21-02-2025	Sathyabama College, Chennai	International	-
9	K V Shunmughi. S Varshini	[illegible]	[illegible]	19-02-2025 to 21-02-2025	Sathyabama College, Chennai	International	-

WEBINAR

S No	Name of the student	Presented/ Attended	Title of the paper	Name of the event	Date	Venue of the event	Webinar/Seminar
1	R Sujitha	Attended	-	Nurturing Future Biotech Industry Professionals	038--0066--22002244.t o	Kiedshiuntya Sncolongeyes	Webinar
2	B Manoj harish	Attended	-	Nurturing Future Biotech Industry Professionals	038--066--22002244 o	Kashuea of aned Sitcoielongeyes	Webinar
3	S Nayaana	Attended	-	'Computer Aided Drug Designing	20-08-2024 to 21-08-2024	Aspire tech park	Webinar
4	M Kaviyasree	Attended	-	'Computer Aided Drug Designing	20-08-2024 to 21-08-2024	Aspire tech park	Webinar

SEMINAR

S No	Name of the student	Presented/ Attended	Title of the paper	Naemnte of the The impact of	Date	Venue of the event	Webinar/Seminar
1	K Yamuna	Attended		Isoecailathl ymedia on relationship	9-10-2024	SFR College	Seminar
2	T Shalini	Presented	Microbial sensors for environmental pollution detection		21-02-2025	The Madura College	Seminar
3	V N Haresh	Presented			21-02-2025	The Madura College	Seminar
4	R B Akshaya	Presented	Bioengineered bacteriophage therapy and Nanomaterial based Antifungal coating for controlling fungal growth on space stations	New Vistas in Pharmaceutical Microbiology	21-02-2025	The Madura College	Seminar
5	K Ragul	Presented	Effect of hexavalent chromium by using Turbanaria ornanta	New Vistas in Pharmaceutical Microbiology	21-02-2025	The Madura College	Seminar
6	D Supriya	Presented	Bioengineered Microbes for oxygen and food production in space	New Vistas in Pharmaceutical Microbiology	21-02-2025	The Madura College	Seminar
7	G Krishna Priyanka	Presented	Enzyme Engineering For Sustainable Industrial Process"	New Vistas in Pharmaceutical Microbiology	21-02-2025	The Madura College	Seminar
8	S B Jeevaasri	Presented		New Vistas in Pharmaceutical Microbiology	21-02-2025	The Madura College	Seminar
9	M Dhivya	Presented			21-02-2025	The Madura College	Seminar
10	V Veeralakshmi	Presented			21-02-2025	The Madura College	Seminar

SYMPOSIUM PARTICIPATION

S NO	Name of the student	Title of the event	Event participated	Date	Venue
1	P Sankarapandian, M Selvaruban, R M Vishnuvardhan	Quiz Pocalypse	Non- Technical Event	26-09-2024 to 27-09-2024	University College of Engineering, BIT Campus, Anna University
2	M S Senkvaarruapbaannd, i Ran, Vishnuvardhan	Quiz Pocalypse	Paper Presentation	26-09-2024 to 27-09-2024	University College of Engineering, BIT Campus, Anna University
3	K Rakshana, S Viveha Bala	Technical Symposium	Paper Presentation	01-10-2024	PSR Engineering College
4	S Nagalakshmi , N Karanya	Technical Symposium	Paper presentation	01-10-2024	PSR Engineering College
5	M Devi , M S Sakthi, Shyamala	Technical Symposium	Paper presentation	01-10-2024	PSR Engineering College
6	B Manoj Harish	Technical Symposium	Paper presentation	01-10-2024	PSR Engineering College
7	S Sumathi , L Priyadharshini	GyanMitra'25	Poster presentation	20-02-2025	Mepco Schlenk Engineering College
8	S Gowri , J Saron Merline	GyanMitra'25	Poster presentation	20-02-2025	Mepco Schlenk Engineering College

WORKSHOP ATTENDED

S.No	Name of the student	Title of the event	Date	Venue of the event PG &
1	T Shalini	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	Research Chennai PG & Research
2	D Supriya	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	Chennai Indian Space Research Organisation,
3	G Krishna Priyanka	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	Department of Space, Government of India Sri Ramakrishna College of Engineering, Coimbatore
4	R Sujitha	Raman Spectroscopy and its Applications in Earth Observation	24-12-2024.	Sri Ramakrishna College of Engineering, Coimbatore
5	M Kaviya Sree	Bionanotechnology	2002-051 -2025 to 25-01-	Sri Ramakrishna College of Engineering, Coimbatore
6	S R Elakiya	Bionanotechnology	2002-051 -2025 to 25-01-	Mepco Schlenk Engineering College, Sivakasi
7	S Nayaana	Bionanotechnology	2002-051 -2025 to 25-01-	Mepco Schlenk Engineering College, Sivakasi
8	S Roshini	Bionanotechnology	2002-051 -2025 to 25-01-	
9	S Sumathi	2D Gel Electrophoresis	19-02-2025	
10	I. Priyadharshini	2D Gel Electrophoresis	19-02-2025	
11	J Saron Merline	2D Gel Electrophoresis	19-02-2025	

12	V Veeralakshmi	Virudhunagar Startup Summit by StartupTN	28-02-2025	Kamaraj College of Engineering and Technology
13	K Rakshana	Virudhunagar Startup Summit by StartupTN	28-02-2025	Kamaraj College of Engineering and Technology
14	I Vimala	Virudhunagar Startup Summit by StartupTN	28-02-2025	Kamaraj College of Engineering and Technology
15	N Karanya	Virudhunagar Startup Summit by StartupTN	28-02-2025	Kamaraj College of Engineering and Technology
16	G Brindha Rajam	Virudhunagar Startup Summit by StartupTN	28-02-2025	Kamaraj College of Engineering and Technology
17	K Yamuna	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
18	S Aaparna	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
19	M Karishma	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
20	V Vishwapriya	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
21	S Swetha	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti

22	S B Jeevari	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
26	V Veeralakshmi	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
27	C Sentamil Arasi	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
28	S Nagalakshmi	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
29	M Divya	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
30	N Karanya	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
31	K Rakshana	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
32	R Sujitha	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
33	G Nandhini	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
34	M Abinaya	NEC Startup Entrepreneurship Summit-II by DST i-TBI,NEC	23-08-2024 to 24-08-2024	National Engineering College, Kovilpatti
35	M Mohamed Aasim	Treatment of immature rice	24-09-2024 to 25-09-2024	Lena serma Kannan Rice mill, Madurai

INTERNSHIP

S.No	Name of the Student	No. of Days	No. of Hours	From Date	To Date	Name of the Company	Place/Address
1	K Divya jothi	14	85	17-06-2024	30-06-2024	SNP DAIRY FARM	22G8+36X, Ayyankottai, Tamil Nadu 625221
2	M Abinaya	15		27-05-2024	14-06-2024	Idhayam parikshan lab limited	Nandavanam Street, PP Vaiyapuri St, Sivagami Puram, Virudhunagar, Tamil Nadu 626001
3	M Harini	15	90	15-06-2024	29-06-2024	Ruby Food Products and Pvt Lmtd	K.Pudur Madurai
4	T Shamyuktha	30		06-06-2024	07-05-2024	NIT Trichy	
5	S Madhumitha	30		06-06-2024	07-05-2024	National Institute of technology	Trichy
6	M Yakgna devi	30		06-06-2024	07-05-2024	National Institute of technology	Trichy
7	S Deepika	14	85	14-06-2024	27-06-2024	Manna Food Pvt Ltd (Britannia)	Nagari, Madurai
8	J Nithya shree	15		24-06-2024	08-06-2024	NIT Trichy	Trichy
9	S Anis Fathima	15	90	15-06-2024	30-06-2024	Arvind chettinad snacks	SIDCO industrial estate, kappalur
10	A Rinita Jonellia	15	90	15-06-2024	29-06-2024	Ruby Food Products Pvt Ltd	K.Pudur,Madurai
11	N Udith Saran	15	80	14-06-2024	28-06-2024	hot cups	west aavani moola street ,Madurai
12	T S Ridhu Varshini	15	80	13-06-2024	29-07-2024	Excellence Laboratory	Ram nagar,S.S.colony,madurai
13	K S Krisha	15	90	15-06-2024	30-06-2024	Arvind chettinad snacks	SIDCO Industrial estate, kappalur
14	S Harshitha	15	90	15-06-2024	30-06-2024	Arvind chettinad snacks	SIDCO industrial estate, kappalur

15	V Swetha	28		10-06-2024	08-07-2024	National Institute of technology	Trichy
16	S R Santhosh Kaveri	15	80	14-06-2024	28-06-2024	Hot Cups	West aavani moola street, Madurai
17	AM Harikrishnan15			06-05-2024	20-6-2024	Parle Biscuit Factory	Patwari Bakers, Sidco Industrial Estate, Kappalur Madurai, Tamil Nadu. 625008
18	A Femina Fathima	15	80	14-06-2024	28-06-2024	THILLAIS MASALA (PEC)	VIRUDHUNAGAR
19	R Sujitha	15		10-06-2024	24-06-2024	Maami Foods Private Limited	1332, Pullalakottai Rd, Sivagami Puram, Virudhunagar
20	S Subitha	15		20-06-2024	04-07-2024	Aavin	Aavin- tirunelveli union,Reddiarpatty ,tirunelveli
21	N MohanaKannan	15	80	14-06-2024	28-06-2024	hot cups	west aavani moola street ,Madurai
22	S Sanmitaa	30		06-01-2024	30-6-2024	Madurai kamaraj University	Palkalai Nagar, Tamil Nadu 625021
23	V Vijayashree	10	80	24-06-2024	07-01-2024	Gandhigram university	Dindugal
24	M Sasi Balan	15	80	07-06-2024	21-06-2024	Chimertech private ltd	paper mills road,chennai
25	J Praveen	15	80	07-06-2024	21-06-2024	Chimertech private ltd	paper mills road,chennai
26	T Harini	15		15-06-2024	30-06-2024	Aparajith Agro food products	D5, SIDCO industrial estate, kappalur, Madurai
27	V Bala priya	15		15-06-2024	30-06-2024	Aparajith Agro food products	D5, SIDCO industrial estate, kappalur, Madurai
28	C Pooja	30		06-06-2024	07-06-2024	National Institute of technology	Trichy

29	K Sornamala Ramya	15	80	13-6-2024	28-6-2024	Fogiene sciences	17, Patel Ram Reddy Rd, K.R.Colony, Krishna Reddy Layout, Domlur, Bengaluru, Karnataka 560071
30	K Suja ulagashree	15	80	13-6-2024	28-6-2024	Fogiene sciences	17, Patel Ram Reddy Rd, K.R.Colony, Krishna Reddy Layout, Domlur, Bengaluru, Karnataka 560071
31	C Lokeshram	30	240	29.05.2024	27-06-2024	Madurai Kamaraj University	Madurai
32	R Balaji	20	160	29-05-2024	24-06-2024	Madurai Kamaraj University	Madurai
33	R Shibi james Raja	15	80	31-05-2024	14-06-2024	Jeypee Biotechs	Kullurchandhai road, Virudhunagar
34	M Helen gracelin joy	15	80	01-06-2024	15-06-2024	Sri hospital	Kovilpatti
35	M S Sakthi shyamala	15	80	15-06-2024	29-06-2024	Meenakshi mission hospital	Madurai
36	S S Janakar	15	80	31-05-2024	14-06-2024	Jeypee Biotechs	Kullurchandhai road, Virudhunagar
37	J Nambe Eswari	31	240	15-06-2024	15-07-2024	CSIR-central salt marine chemicals research institute	Mandapam
38	B.J Naveen	30	240	29-05-2024	27-06-2024	Madurai Kamaraj University	Madurai
39	L Priyadharshini	15	80	06-06-24	22-06-24	Meenakshi mission hospital	Madurai
40	A Pehina	15	80	27-05-2024	10-06-2024	Vadamalaiyaan hospital	Madurai

41	S Parkavi Nanthini	15	80	01-06-24	15-06-24	Nila sea foods	Thuthukudi
42	K Sakthi Shivani	15	80	27-05-2024	10-06-2024	Mahdoasmpiatalal iyaaMadurai	
43	M Selva Ruban	15	80	27-05-2024	10-06-24	Mahdoasmpiatalal iyaaMadurai	
44	KAbinanthan	15	80	10-06-2024	27-0-2024	Apollo hospital	Madurai
45	K Ragul	15	80	05-06-2025	22-6-2024	Scigenics biotech private limited.	East coastal road, Neelankarai, Chennai
46	V K Vibhu purushoth	15	80	10-06-2024	29-06-2024	SNP Dairy	Madurai
47	K V Shunmughi	15	80	03-06-2024	17-06-2024	Meenakshi mission hospital	Madurai
48	Saron Merline	15	80	17-06-2024	03-07-2024	Agam Diagnostics	Madurai
49	S Varshini	15	80	03-06-2024	19-06-2024	NSIC Technical Services Centre	Ekkaduthangal , Chennai
50	RM Vishnuvardhan	15	80	27-05-2024	10-06-2024	Mahdoasmpiatalal iyaaMadurai	

50	RM Vishnuvardhan	15	80	27-05-2024	10-06-2024	Vahdoasmpiatalal iyaa	Madurai
51	V Nageswaran	15	80	06-06-2024	24-06-2024	Idhayam Parikshan Lab	Virudhunagar
52	S Gowri	15	80	27-05-2024	10-06-2024	Avigen	Chennai
53	Mohamed Aasim	15	80	24-05-2024	09-06-2024	NSIC Technical Services Centre	Ekkaduthangal , Chennai
54	M Devi	15	80	03-06-2024	17-06-2024	Krishnammal Memorial Hospital	Theni
55	N Gangeshwari	15	80	01-06-2024	15-06-2024	Sri hospital	Kovilpatti
56	R Pugazhenthi	15	80	27-05-2024	10-06-2024	Vahdoasmpiatalal iyaa	Madurai
57	S Sumathi	15	80	01-06-2024	15-06-2024	[illegible]-etarerei & htc	Thirunelveli
58	R Sharmila	15	80	01-06-2024	15-06-2024	Sri hospital	Kovilpatti
59	G Selva Murugan	15	80	31-05-2024	14-06-2024	Nila sea foods	Thuthukudi
60	S Swetha	15	80	17-06-2024	05-07-2024	hInydbori dam	seeerdicsa nBanglore
61	J Vaishnavi rishikaa	15	80	01-06-2024	15-06-2024	Streling Lab	Hosur

62	V N Haresh	15	80	15-06-2024	01-07-2024	Auro lab	Madurai
63	P Sankarapandian	15	80	06-06-2024	24-06-2024	Idhayam Parikshan Lab	Virudhunagar
64	S Jeya Princy	15	80	17-06-2024	03-07-2024	Agam Diagnostics	Madurai
65	B Manoj harish	30	240	01-06-2024	30-06-2024	Madurai medical college	Alwarpuram, Madurai
66	K Guru Varshini	15	80	17-06-2024	05-07-2024	hInydbori dam	seeerdicsa nBanglore
67	B R Akshaya	15	80	10-06-2024	25-06-2024	SNP Dairy	Madurai
68	S Prakitha	15	80	17-06-2024	03-07-2024	Agam Diagnostics	Madurai
69	G Nancy	15	80	17-06-2024	05-07-2024	hInydbori dam	seeerdicsa nBanglore
70	N Suruthi	15	80	03-06-2024	17-06-2024	Meenakshi mission hospital	Madurai
71	N Keerthana	15	80	01-06-2024	15-06-2024	Nila sea foods	Thuthukudi
72	L Priyadharshini	14 Days	112	18-12-2024	31-12-2024	Madurai Agribusiness Incubation (NABARD)	Othakadai, Madurai
73	Mohamed aasim	15 Days	120	15-12-2024	29-12-2024	MESSA Jaggery Industry	Marayoor-685620, Idukki District, Kerala, India
74	S Varshini	14 Days	112	18-12-2024	31-12-2024	Madurai Agribusiness Incubation (NABARD)	Othakadai, Madurai

COURSE COMPLETION

S.No	Year	Name of the Student	Name of the course completed	Duurrastei on of the	Hostsittotnu/tPel/aOtfrogramni Score (%
1	IV	Nithya shree	Digital skills:Artificial Intelligence	3 Weeks	Accenture	-
2	IV	Nithya shree	NPTEL - Structural biology	Jan-April, 2024/12 weeks	IIT Roorkee	62
3	IV	Nithya shree	EF SET English	01-Oct-24		75
4	IV	K Dharshan	NPTEL - Structural biology	Jan-April, 2024/12 weeks	IIT Roorkee	62
5	IV	S R Santhosh kaveri	NPTEL - Structural biology	Jan-April, 2024/12 weeks	IIT Roorkee	65
6	IV	Rinita jonellia	NPTEL - Structural biology	Jan-April, 2024/12 weeks	IIT Roorkee	67
7	IV	Priya dharshini	NPTEL - Structural biology	Jan-April, 2024/12 weeks	IIT Roorkee	60
8	IV	Nithya shree	Foundation of project management	28-Apr-24	Google	-

9	IV	Priyangka shankar	soil moisture monitor	24-Oct-24	Infosys	-
10	IV	C Pooja	soil moisture monitor	23-Oct-24	Infosys	-
11	IV	K Divya jothi	soil moisture monitor	23-Oct-24	Infosys	
12	IV	S Deepika	soil moisture monitor	24-Oct-24	Infosys	-
13	IV	R Sujitha	Geospatial Technology for Digital Agricultural	24-28 June, 2024/5 days	Department of Space/GOI/ISRO/IIRS	-
14	III	KV Shunmughi	Bioformatics	16-30 Sep, 2024/1 month	Institution of innovation	-
15	III	R Sharmila	Bioformatics	16-30 Sep, 2024/1 month	Institution of innovation	-
16	III	N Gengeswari	Bioformatics	16-30 Sep, 2024/1 month	Institution of innovation	-

17	III	M Helen Gracelin Joy	Bioformatics	16-30 Sep, 2024/1 month	Institution of innovation	-
18	III	C Lokeshram	ICH Good Clinical Practice E6	28-Sep-24	The Global Health network	94
19	III	C Lokeshram	Medical Ethics	24-Sep-24	Infosys	-
20	III	J Saron Merlin	Medical Ethics	26-Sep-24	Infosys	-
21	III	J Saron Merlin	ICH Good Clinical Practice E6	28-Sep-24	The Global Health network	89
21	III	K Sakthi Shivani	Artificial Intelligence and Machine Learning approaches for Drug and Vaccine Design in Cancer	16-30 May, 2024/15 days	Institution of innovation	-
22	III	V N Haresh	NPTEL - I Think Biology	Jan-April, 2024/12 weeks	IIT Madras	56
23	III	G Selva Murugan	NPTEL - Introduction to internet of things	Jan-April, 2024/12 weeks	IIT Kharagpur	72
24	III	S Swetha	NPTEL- I Think Biology	Jan-April, 2024/12 weeks	IIT Madras	46

SPORTS EVENT LISTS

S.No	Name	Venue	Event	Date	Remarks	Achievement
1	S Sivaganesh	Kamaraj College of Engineering and Technology/AU Sports club	Tennis	26-09-2024	-	2 PLACE
2	M Abinaya	AAA College of Engineering and Technolgy	Volley Ball	7-10-2024	-	3 PLACE
3	K Dharsan	Mepco schlenk engineering college	Solo dance/Culturals	19-09-24 to 20-9-24	-	3 PLACE
4	R Balaji	Chettinad College of Engineering and Technology/AU Sports board	Basket ball	30-9-24 to 1-10-24	Participated	-
5	G Selva Murugan	ESSnMgin Inesrtintgute of AanUd TSeepcohrntso lcolugby/ Hockey		23-9-24 to 24-9-24	-	3 PLACE
6	B J Naveen	Chettinad College of Engineering and Technology/AU Sports board	Basket ball	30-9-24 to 1-10-4	-	2 PLACE

7	K Sakthishivani	Mepco schlenk engineering college	Yoga/Culturals	19-9-24 to 20-9-24	-	I PLACE in Yoga
8	S Prakitha	Mepco schlenk engineering college	Culturals	19-9-24 to 20-9-24	Participated	-
9	K Sakthishivani	K.P.A.T.D.R Sivakasi Jaycees Matric Hr. Sec. School	MANDHI 24	5-4-2024	Participated	-
10	K Sakthishivani	K.P.A.T.D.R Sivakasi Jaycees Matric Hr. Sec. School	Jaycee Carnival 24	8-9-2024	Participated	-
11	C Lokeshram	K.P.A.T.D.R Sivakasi Jaycees Matric Hr. Sec. School	Jaycee Carnival 24	8-9-2024	Participated	-
12	K Sakthi shivani	Tamilnadu youth yogasana sports association	Yoga	19-10-2024	Participated	-
13	J Nambeeshwari	NCC	NCC	10-7-2024	-	Cleared the Exam
14	S Jeya princy	Hindustan institute of technology	DUO DANCE	25-09-2024	-	2 PLACE
15	S Gowri	Virdhunagar district yogasana association/Sri Ambal Ramasamy Yoga centre	Yoga	19-2024	-	1 PLACE
16	K Sakthi shivani	South India yogasana championship 2024	yoga	28-07-2024	-	1 PLACE
17	K Sakthi shivani	Kongunadu engineering college	yoga	31-08-2024	-	2 PLACE

18	K Sakthi shivani	SW AU, Chennai/Kalinga institute of Industrial Tech, Bhubaneswar	yoga	25-12-23 to 27-12-23	-	BRONZE Medal
19	S Gowri	Virudhunagar Good Will Scout Troop/Virudhunagar S. Vellaichami Nadar Polytechnique College	Yoga	29-07-2024		3 PLACE
20	K Abinanthan	K.P.A.T.D.R Sivakasi Jaycees Matric Hr. Sec. School	Jaycee Carnival 24	8-9-2024	Participated	-
21	K Abinanthan	SSM Institute of Engineering & Technology/AU Sports Club	Hockey	23-9-24 to 24-9-24	-	3 PLACE
22	P Sankarapandiyan	All India Council for Technical Skill Development	AKNSC Drawing	22-08-2024	Participated	-
23	R Pugazhenthi	SSM Institute of Engineering & Technology/AU Sports Club	Hockey	23-9-24 to 24-9-24	-	3 PLACE
24	K Raghul	Chettinad College of Engineering and Technology/AU Sports board	Basket ball	30-9-24 to 1-10-24	-	2 PLACE
25	R Sharmila	MGR stadium	JUDO competition (CM Trophy)	19-9-2024	-	3 PLACE
26	S.Varshini	NCC	CATC-CUM-GP RDC TRG-II	13-09-24 to 23-09-24	Participated	-
27	K Sakthi shivani	World Youth Federation	Dr.Kalam Awards	23-09-2024	-	Received Dr.Kalam Young Achiever Award

28	S Hari prasath	Chettinad College of Engineering and Technology/AU Sports board	Basket ball	30-9-24 to 1-10-24	-	2 PLACE
29	P Hari Balamurugan	Mepco schlenk engineering college	Culturals	19-09-24 to 20-9-24	Participated	-
30	G Vijaya ragavan	Mepco schlenk engineering college	Culturals	19-09-24 to 20-9-4	Participated	-
31	K Mohan raj	Mepco schlenk engineering college	Culturals	19-9-24 to 20-9-24	Participated	-
32	S G Porselvan	Mepco schlenk engineering college	Culturals	19-09-24 to 20-9-24	Participated	-
33	K Dharshini	Abhu Bhabaji Trust Hall	Single stick	27-07-2024	-	2 place
34	K Dharshini	Virdhunagar district yogasana association/Sri Ambal Ramasamy Yoga centre	Yoga	1-9-2024	Participated	-
35	K P Rathi	Viradhunagar District taekwondo	TAEKWONDO	1-8-2024	-	GOLD Medal
36	S Sanjayveera	NCC	AP Trek-1	06-10-24 to 13-10-24	Participated	-

OTHER ACHIEVEMENTS OF STUDENTS

S.No	Name of the student	Title of the event	Date	Venue of the event
1	T Shalini	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	PG & Research Department of Zoology, Ethiraj College for Women (Autonomous), Chennai
2	D Supriya	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	PG & Research Department of Zoology, Ethiraj College for Women (Autonomous), Chennai
3	G Krishna Priyanka	Basic Molecular Diagnostic Techniques (BMDT-2024)	16-12-2024 to 17-12-2014	PG & Research Department of Zoology, Ethiraj College for Women (Autonomous), Chennai
4	R Sajitha	Raman Spectroscopy and its Applications in Earth Observation	24-12-2024.	Indian Space Research Organisation, Department of Space, Government of India
5	M Kaviya Sree	Bionanotechnology	20-01-2025 to 25-01-2025	Sri Ramakrishna College of Engineering, Coimbatore
6	S R Elakiya	Bionanotechnology	20-01-2025 to 25-01-2025	Sri Ramakrishna College of Engineering, Coimbatore
7	S Nayaana	Bionanotechnology	20-01-2025 to 25-01-2025	Sri Ramakrishna College of Engineering, Coimbatore
8	S Roshini	Bionanotechnology	20-01-2025 to 25-01-2025	Sri Ramakrishna College of Engineering, Coimbatore
9	S Sumathi	2D Gel Electrophoresis	19-02-2025	Mepco Schlenk Engineering College, Sivakasi
10	L. Priyadharshini	2D Gel Electrophoresis	19-02-2025	Mepco Schlenk Engineering College, Sivakasi
11	J Saron Merline	2D Gel Electrophoresis	19-02-2025	Mepco Schlenk Engineering College, Sivakasi

11	Nambeeswari	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
12	Vaishnavi Rishikaa	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
13	Pebina	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
14	N Keerthana	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
15	Guruvarshini	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
16	S Parkavi Nanthini	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
17	S Jeyaprincy	Skin Disease Awareness Rally	30-01-2025	NSS and NCC Unit of Kamaraj College of Engineering and Technology
18	B R Akshaya	World Record Attempt (under India Book of Records) on "MAXIMUM NUMBER OF STUDENTS DEMONSTRATING THE USE OF ENGLISH PREPOSITIONS"	31-01-2025	P. S. Chidambara Nadar Senior English School, Virudhunagar

19	S Jeyapriney	World Record Attempt (under India Book of Records) on "MAXIMUM NUMBER OF STUDENTS DEMONSTRATING THE USE OF ENGLISH PREPOSITIONS"	31-01-2025	P. S. Chidambara Nadar Senior English School, Viradhunagar
20	J Vaishnavi Rishikaa	World Record Attempt (under India Book of Records) on "MAXIMUM NUMBER OF STUDENTS DEMONSTRATING THE USE OF ENGLISH PREPOSITIONS"	31-01-2025	P. S. Chidambara Nadar Senior English School, Viradhunagar
21	S Prakitha	World Record Attempt (under India Book of Records) on "MAXIMUM NUMBER OF STUDENTS DEMONSTRATING THE USE OF ENGLISH PREPOSITIONS"	31-01-2025	P. S. Chidambara Nadar Senior English School, Viradhunagar
22	K V Shunmugi	World Record Attempt (under India Book of Records) on "MAXIMUM NUMBER OF STUDENTS DEMONSTRATING THE USE OF ENGLISH PREPOSITIONS"	31-01-2025	P. S. Chidambara Nadar Senior English School, Viradhunagar
23	N Karanya	Business Introduction Speech	05-02-2025	Business Network International (BNI), Viradhunagar
24	S Janani	Business Introduction Speech	05-02-2025	Business Network International (BNI), Viradhunagar
25	R Sujitha	NPTEL Stars Felicitation Event	09-02-2025	IIT Madras
26	S Swetha	Organized a Workshop for UG and PG Students	21-02-2025	Government Arts College for women, Sivagangai
27	G Nancy	Organized a Workshop for UG and PG Students	21-02-2025	Government Arts College for women, Sivagangai
28	N Suruthi	Organized a Workshop for UG and PG Students	21-02-2025	Government Arts College for women, Sivagangai

Gene edited non browning banana: a step to increase the self life

To increase the shelf life of one of the most popular fruits in the world, gene-edited non-browning bananas are a significant step in the direction of decreasing food waste. Enzymatic browning is a major contributor to the spoiling of bananas, which are extremely perishable. The primary cause of this browning process is the enzyme polyphenol oxidase (PPO), which forms brown pigments when it combines with oxygen when the banana is peeled or bruised. In order to combat this, researchers have used the CRISPR-Cas9 gene-editing technique to deactivate or decrease PPO gene expression, which Because of this, these bananas are less likely to be thrown out too soon and keep their fresh look for longer.

Reducing food waste, especially at the consumer and retail levels, is one of the biggest advantages of non-browning bananas. Even when they are still edible, bananas that have browning are frequently thrown out. Gene-edited bananas can remain fresher for longer by avoiding enzymatic browning, which reduces spoiling during storage and transit. This longer shelf life guarantees that consumers may keep bananas for longer periods of time without worrying about them losing their attractiveness while also assisting supermarkets and suppliers in minimising financial losses. Reducing food waste also has significant environmental benefits .

Although gene-edited foods have many benefits, there are still issues with public acceptance and governmental approval. The safety of genetic alterations may still raise worries for certain consumers, so scientists and the food business need to raise awareness and communicate openly. But if biotechnology develops and legal laws change, non-browning bananas might become a common way to reduce food waste, which would be good for the economy, society, and environment. Using modern genetic technology, this invention not only solves the world's food waste problem but also supports sustainable farming methods, making it a positive step toward environmental preservation and food security.

J.Marisha Christine Stisha
23UBT026

Biotechnology in Beauty: Revolutionizing Skincare and Cosmetics

By bringing innovative, environmentally friendly, and scientifically supported skincare, haircare, and cosmetics products, biotechnology is revolutionizing the beauty sector. Biotechnology is improving product efficacy, sustainability, and personalization in the beauty industry by utilizing biological processes, genetic engineering, and bioactive ingredients.The creation of bioengineered components is among biotechnology's most important contributions to the beauty industry. In the past, a lot of cosmetic products used synthetic chemicals, plant extracts, or However, biotechnology makes it possible to use fermentation or genetically engineered microbes to produce lab-grown, bio-identical components like collagen, peptides, hyaluronic acid, and antioxidants. This approach lessens reliance on extraction techniques that are animal-based or detrimental to the environment by guaranteeing purity, consistency, and ethical sourcing.

Another important factor influencing biotech beauty advancements is sustainability. Biotech- based methods provide substitutes for conventional palm oil, squalane, and retinol—all of which are frequently sourced in an unsustainable manner—in response to the increased demand for Nowadays, businesses are synthesizing biodegradable biopolymers to replace plastic-based materials in cosmetic packaging, developing lab-grown vegan collagen instead of using fish or bovine sources, and producing bioengineered squalane from sugarcane.

Biotechnology is driving advancements in haircare, including peptide-based hair restoration therapies and bioengineered keratin, which imitate natural proteins to strengthen and repair In addition, businesses are investigating biotech-based hair pigmentation solutions to develop non-toxic, long-lasting, and scalp-friendly substitutes for conventional hair colors. Despite the many advantages of biotech beauty, issues with pricing, market acceptance, and regulatory approvals still exist. More disclosure and education from brands are necessary since some customers may still be wary about bioengineered ingredients. But as biotechnology develops further, it has the potential to transform the beauty sector by providing cleaner, greener, and more potent products that combine science and nature to improve sustainability and skincare.

R.B.Akshaya
23UBT031

Lab-Grown Meat: The Future of Sustainable Protein

As concerns about food security, animal welfare, and environmental sustainability increase, so does the demand for meat substitutes. Conventional cattle farming contributes significantly to deforestation, excessive water use, and greenhouse gas emissions. As a result, lab-grown meat—also referred to as farmed or cell-based meat—is becoming a pioneering remedy that has the potential to completely transform the world's food market.

Meatable, a Dutch biotechnology company that invented a cutting-edge technique utilizing Opti-Ox technology, is one of the top businesses in this field. In contrast to traditional meat manufacturing, which can take months or years, this method entails taking a tiny number of stem cells from animals and directing them to develop into muscle and fat tissues in as little as four days. Cultivated meat is a desirable choice for meat lovers since it mimics the flavor, texture, and nutritional profile of traditional meat, in contrast to plant-based meat alternatives.

Lab-grown beef has huge environmental benefits. According to studies, compared to conventional animal farming, the production of cultured meat could cut greenhouse gas emissions by up to 90%, land utilization by 99%, and water consumption by 82%. It also removes the necessity for extensive animal husbandry, which is linked to the overuse of antibiotics, animal abuse, and the spread of zoonotic illnesses. The food industry might develop a more scalable, sustainable, and moral protein source by switching to cell-based meat.

The main benefits of lab-grown meat are health and food safety, in addition to environmental benefits. Growth hormones, antibiotics, and the possibility of infection from bacteria like Salmonella and E. coli are all common in traditional meat production. Cultivated beef provides for exact nutritional modifications, such as lowering saturated fats or raising vital elements like omega-3 fatty acids, and lowers the possibility of bacterial contamination because it is grown in controlled laboratory settings.

But there are still obstacles in the way of lab-grown meat's widespread acceptance. Three major obstacles still exist: high production costs, regulatory approvals, and consumer acceptability. At the moment, the expenses of growing media, bioreactors, and scaling-up infrastructure make the production of cultured meat costly. Nonetheless, continuous research and investments are cutting costs quickly, and some businesses hope to match the price of regular beef within the next ten years. Singapore established a precedent for future international rules in 2020 by becoming the first nation to authorize the sale of lab-grown meat. Additionally, regulatory frameworks to facilitate commercial production are being evaluated by the European Union and the United States.

Lab-grown meat has the potential to transform the food industry by offering a scalable, ethical, and sustainable substitute for conventional beef as manufacturing prices come down and technology improves. Cultivated meat has the ability to satisfy the increasing need for protein worldwide while drastically lowering its environmental effect, thanks to firms like Meatable, Upside Foods, and Eat Just setting the standard. The development of a more robust and sustainable food system for coming generations may be greatly aided by the widespread adoption of cell-based meat.

K.Mukila
23UBT030

Fermentation-Based Smart Packaging for Meat Spoilage Detection

Food spoilage, particularly in meat products, poses a major challenge in the food industry, leading to significant waste and potential health hazards. Traditional packaging methods lack real-time indicators of freshness, making it difficult for consumers to detect spoilage before consumption. The primary cause of meat spoilage is microbial activity, which releases volatile compounds like ammonia (NH_3) and hydrogen sulphide (H_2S), altering the pH and producing foul-smelling odours.

Copper-based smart packaging addresses this issue by utilizing copper salts, which undergo a precipitation reaction with H_2S, forming black cupric sulphide (CuS). This reaction, $Cu^{2+} + H_2S \rightarrow CuS$ (black precipitate) $+ 2H^+$, serves as a clear visual indicator of spoilage. The copper salts are incorporated into gas-sensing films within the packaging, where they remain stable under normal conditions but react upon exposure to H_2S, causing a distinct colour change from blue to black.

This system enables real-time freshness monitoring without opening the package, offering a non-invasive, cost-effective, and food-safe solution. The integration of copper-based indicators into biopolymer films ensures biodegradability, while their high sensitivity to spoilage gases makes them highly effective in detecting early signs of meat degradation. This advancement enhances food safety, reduces waste, and improves supply chain monitoring by providing a clear, irreversible visual alert to consumers and retailers.

S.Mahesh
23UBT054

Solid-State Fermentation (SSF) for the Production of Industrial Enzymes

Solid-state fermentation (SSF) is an increasingly popular technique for the production of industrial enzymes, offering several advantages over traditional submerged fermentation methods. SSF involves the cultivation of microorganisms on solid materials without free-flowing water, mimicking natural habitats like compost or decaying plant matter. This technique is particularly effective for filamentous fungi and certain bacteria, which thrive in low-moisture conditions.

One of the major benefits of SSF is its cost-effectiveness. The substrates used—such as agricultural residues like wheat bran, rice husks, or sugarcane bagasse—are low-cost and widely available. This not only reduces production expenses but also promotes sustainable waste management by converting agro-industrial by-products into valuable bioproducts.
SSF is especially advantageous for the production of enzymes such as cellulases, amylases, proteases, lipases, and pectinases, which are widely used in industries like textiles, food processing, detergents, paper, and biofuels. The high productivity and enzyme yields observed in SSF are often attributed to the concentrated nature of the process and the low water activity, which can favor the stability and activity of many enzymes.

However, SSF does come with challenges, including difficulties in process control, heat buildup, and scaling up. Maintaining uniform temperature, moisture, and aeration throughout the solid substrate is crucial to achieving consistent results. Recent advances in bioreactor design and process monitoring are helping to overcome these limitations, making SSF more viable for large-scale industrial applications.
In conclusion, solid-state fermentation represents a promising and eco-friendly approach for enzyme production. Its ability to utilize inexpensive substrates and deliver high yields makes it an attractive option for industries aiming for sustainability and cost efficiency.

K.Mohanraj
23UBT051

Understanding the Role of HPV in Cervical Cancer: Insights and Implications

Cervical cancer is the fourth most frequent cancer in women worldwide, an important public health problem with considerable mortality. Persistent infection with oncogenic human papillomavirus (HPV) is the main cause, frequently compounded by co-infections with other viruses. Recent work has clarified some of the aspects of HPV infection biology, documenting how the virus interacts with and infects cells and leads to cancer. This realization stresses the need to consider HPV's oncogenic role and its connection to other viral infections that can cause further malignancy.

HPV vaccination is one of the most effective preventive measures against cervical cancer. New vaccine strategies, such as live attenuated, subunit, and DNA vaccines, have been developed, in addition to newer technologies like nanotechnology and plant-derived products, with the potential for better HPV prevention. Even with these new developments, the use of modern screening and treatment modalities is essential, particularly in low-resource settings, to control the increasing incidence of cervical cancer.

Spreading awareness on HPV and its association with cervical cancer is critical. Health education programs regarding the spread of HPV, prevention, and the importance of frequent screenings will help enable women to own their health, translating into high uptake of vaccines, especially in low- and middle-income nations, where the rate of cervical cancer is in proportion to poor accessibility to health facilities.

Socioeconomic disparities, such as poverty and gender inequality, further complicate the issues of HPV and cervical cancer. HIV-infected women are at higher risk of acquiring the disease, which highlights the imperative for combined healthcare interventions. A multifaceted approach that brings together vaccination, education, and early interventions will be critical in reducing the worldwide burden of cervical cancer and enhancing women's health outcomes.

P.Haris Balamurugan
23UBT022

Recombinant DNA Technology: A Genetic Approach to the Worldwide Water Crisis

Water scarcity, pollution, and asymmetrical distribution present serious risks to human health and ecosystem resilience. Conventional methods of water purification—chlorination, filtration, reverse osmosis, and chemical precipitation—are energy-consuming and even restrictive in the elimination of new contaminants. Biotechnology, especially recombinant DNA (r-DNA) technology, provides new tools to redefine the detection, purification, and conservation of water. By genetic engineering, researchers are developing biologically designed systems to combat water problems with accuracy, sustainability, and economy. Understanding r-DNA Technology Recombinant DNA technology consists of changing or the integration of genetic material across organisms to introduce novel biological functionalities. Based on this methodology, microorganisms, plants, and enzymes may be used to identify, degrade, or eliminate harmful water pollutants. Applications of r-DNA in Water Management 1. Genetically Engineered Microorganisms (GEMs) for Bioremediation Genetically altered bacteria and fungi are created to degrade specific contaminants like heavy metals, oil, and pharmaceutical compounds. For instance, Pseudomonas putida genetically engineered with degradation genes can degrade petroleum products in wastewaters. 2. Biosensors Based on r-DNA Technology

These are biological systems (usually bacteria or yeast) genetically engineered to respond to contaminants such as arsenic, nitrates, or endocrine-disrupting compounds. When stimulated, they create an easily quantifiable response like fluorescence, which allows for real-time monitoring of water quality. 3. Transgenic Algae for Treating Sewage and Industrial Waste Algae are engineered to increase the uptake of nutrients like nitrogen and phosphorus as well as the degradation of harmful organic substances. They provide a dual advantage—biomass production and water purification. 4. GM Crops for Indirect Water Conservation Genetically modified crops that grow with less water can significantly reduce agricultural water use. Drought resistance and nutrient use efficiency are engineered using r-DNA techniques. Comparison with Existing Water Remediation Techniques

Aspect	Traditional Techniques	r-DNA Based Techniques
Pollutant Specificity	Broad, non-specific (e.g., chemical precipitation, RO)	Highly specific (engineered microbes target exact toxins)
Energy Requirement	High (e.g., RO, UV treatment)	Low (biological systems often run at ambient conditions)
Adaptability	Fixed setups, less responsive to new contaminants	Can be re-engineered quickly for emerging pollutants
Environmental Impact	Can create secondary pollution (e.g., chlorination byproducts)	Eco-friendly, minimal secondary effects

Future Prospects of r-DNA Technology in Water Management Synthetic Biology for "Smart" Water Filtration Units o Combining biosensors and genetically engineered bacteria into smart filters that can sense and act upon toxins in real time—perfect for decentralized, off-grid applications. ⊠ Genome-Edited Aquatic Plants for Floating Wetlands o Engineered macrophytes that plant in water systems and clean contaminants while keeping balance in the ecosystem—an improvement of conventional phytoremediation. Portable Field Genetic Biosensor Kits: Sleek packages embedded with r-DNA biosensors that are used by farmers, municipal crews, or even civilians to instantaneously analyze the quality of the water. Conclusion Recombinant DNA technology is not only a scientific breakthrough—it is a critical component in our struggle against water insecurity. In contrast to conventional water purification technologies, r-DNA-based solutions provide unmatched specificity, flexibility, and environmental sustainability. With continued innovation, enabling policy, and popular participation, r-DNA technology can become the foundation of sustainable water management strategies globally. By designing water not only as a utility but as a living system, we can design smarter, safer, and more resilient solutions for generations to come.

M.Mohamed Aasim
22UBT024

Unlocking the Secrets of Gene Expression: A Novel Approach to Understanding Cellular Differentiation

Introduction:

Cellular differentiation is a complex process enabling the development and maintenance of multicellular organisms. Recent studies highlight gene expression's critical role in regulating cellular differentiation.

Research Summary:

A novel approach to understanding cellular differentiation has been developed by investigating gene expression's role in regulating cell fate decisions . Using single-cell RNA sequencing and CRISPR-Cas9 gene editing, a key transcription factor regulating genes involved in cellular differentiation was identified.

Impact and Implications:

These findings have significant implications for understanding cellular differentiation and its role in development and disease. Targeting transcription factors may provide a novel approach to treating diseases characterized by aberrant cellular differentiation.

Conclusion:

This research provides new insights into molecular mechanisms underlying cellular differentiation. Findings have significant implications for understanding development and disease.

S.Ngalakshmi
23UBT035

A New Era of Discovery: How Artificial Intelligence has Revolutionized the Biotechnology

In the growing field of biotechnology, artificial intelligence (AI) has emerged as a pivotal force of innovation, unveiling a new era of discovery and advancement. The convergence of AI with biotechnology has revolutionized the landscape of scientific research and development. The dynamic interplay between AI and biotechnology highlights the transformative power of AI techniques in accelerating advancements in drug discovery, development, personalized medicine, biomolecular engineering, bioprocessing, CRISPR technology, genome editing, genomics, proteomics, metabolomics, transcriptomic, and AI-enabled robotics in biotechnology.

This integration of AI with biotechnology helps us combat global challenges and offers environmentally friendly and sustainable solutions like bioremediation, bioplastics, biodiesel, and biofiltration. Current examples of these problems include waste management, air pollution, healthcare, clean water, energy access, sustainable practices, conservation of biodiversity, and ecosystems.

This review article provides a comprehensive analysis, drawing on current literature, case studies, and emerging trends, to highlight the transformative potential of AI in reshaping the biotechnological landscape. It also addresses the challenges and opportunities associated with this AI-powered transformation, discussing future directions, ethical considerations, and the need for human-AI collaboration to ensure responsible and sustainable progress for a brighter future.

S.G.Porselvan
23UBT006

TITLE:The Green Dawn: A Tale of Biotechnology's Future"

In the year 2035, the world had undergone a quiet revolution—one not marked by the loud clamor of political upheavals or global conflicts, but by the steady hum of technology reshaping life itself. Biotechnology, once a niche field limited to laboratories and research centers, had woven itself into the very fabric of everyday life. This was the dawn of an age where life-saving therapies, sustainable agriculture, and environmental healing were no longer futuristic fantasies, but present realities.

The story began in the small town of Verdant Springs, nestled at the edge of a vast forest, where a young scientist named Dr. Evelyn Clark had just finished a breakthrough experiment. Dr. Clark was part of a team of biotechnologists working on a project that could forever change the way humanity interacted with nature. The project, called "GreenShift," aimed to develop genetically engineered plants capable of absorbing carbon dioxide directly from the atmosphere, a solution to combat the looming climate crisis.

Dr. Clark and her team had been perfecting a technique involving CRISPR-Cas9, the revolutionary gene-editing tool. With the help of CRISPR, they had Inserted specific genes into trees, enabling them to rapidly absorb and store carbon in their roots, far more efficiently than natural trees. The results were astounding. Trees that would normally take decades to grow to full size were now growing at a rate that allowed them to capture carbon in mere months. These "super trees" were being planted across cities, forests, and even deserts, turning barren land into lush, green ecosystems.

As the GreenShift initiative spread globally, the world saw a surge in environmental restoration efforts. Forests began to thrive in areas that had once been devastated by deforestation. The air grew cleaner, and rivers, once choked with pollutants, were starting to flow clear again. The project had become a symbol of hope for a planet teetering on the edge of environmental collapse.
But the story didn't end with trees.

In the nearby city of Neuropolis, another team of biotechnologists led by Dr. Ravi Patel was making waves in the field of medicine. Dr. Patel's lab was a hub of activity, where the latest advancements in gene therapy and artificial intelligence were being combined to tackle genetic diseases. One of their most groundbreaking achievements was the successful treatment of sickle cell anemia using CRISPR-based gene therapy.

For years, patients with sickle cell had been dependent on frequent blood transfusions and painful treatments. But in Neuropolis, Dr. Patel's team had perfecte" a technique to edit the genes of bone marrow cells, replacing faulty genes responsible for the disorder. After treatment, patients' bodies produced healthy red blood cells, eliminating the need for lifelong medication. The first successful trial had been celebrated worldwide, and soon, gene therapy began to cure a wide range of genetic disorders, from cystic fibrosis to Duchenne muscular dystrophy.

The success of these treatments led to a surge in biotech companies focusing on personalized medicine, where treatments were tailored to the individual's genetic makeup. Wearable biotechnology also became commonplace, with devices that monitored genetic health markers, providing real-time information to patients and doctors alike. If you were at risk for a genetic condition, the technology would notify you, helping to catch potential health issues long before they could become serious.

But the true magic of this biotechnology revolution wasn't just in treating diseases—it was in its potential to create new life altogether. In a laboratory across the ocean, in the sprawling city of Genesis, a team led by the brilliant bioengineer, Dr. Nadia Liu, had succeeded in creating the first fully functional artificial organ using bioprinting technology.

Dr. Liu's team had unlocked the secrets of 3D bioprinting, a technology that allowed them to print tissues and even entire organs from a patient's own cells. They had successfully printed a fully functional heart, which was later implanted into a patient suffering from heart failure. The operation was a success, and the patient's body accepted the new heart as though it had grown there naturally. It was a historic moment in medicine, a triumph of human ingenuity over the limitations of biology.

Soon, more organs followed—livers, kidneys, lungs—all printed with precision and personalized to fit each patient. The promise of unlimited, custom-made organs was no longer science fiction; it was a tangible reality. People no longer had to wait for months or even years for a donor organ. Transplants were now as simple as printing a new one.

Back in Verdant Springs, the GreenShift project had reached a new frontier. In partnership with Dr. Patel's team, Dr. Clark's group had begun experimenting with bioprinted crops—plants that could grow in the harshest environments, from deserts to frozen tundras. These crops were engineered to require minimal water and nutrients, yet they could grow at incredible rates, feeding populations in the most inhospitable regions of the world.

One day, as Dr. Clark stood in front of a towering field of super crops, she couldn't help but marvel at the progress. What had once seemed like impossible dreams were now tangible realities. Biotechnology had become a force for good, reshaping the planet and improving the lives of millions.

The world was changing. Emerging technologies had unlocked new possibilities, from healing the sick to restoring the Earth. And at the heart of it all was a simple, powerful idea: that science, when wielded responsibly, could not only cure diseases but also heal the planet itself.

As the sun set over Verdant Springs, casting a golden glow over the lush forests of carbon-capturing trees, Dr. Clark smiled. The future was no longer a distant concept; it had arrived—and it was greener, healthier, and more hopeful than ever.

And so, the Green Dawn of biotechnology had truly begun.

K.Dharshini
23UBT047

TITLE: RECENT ADVANCES IN BIOTECHNOLOGY

INTRODUCTION:

Biotechnology has always been at the forefront of scientific advancements, with the potential to revolutionize medicine, agriculture, and environmental sustainability. As new technologies emerge, they offer fresh insights and solutions to some of the most pressing challenges facing the world today. Here, we explore some of the most recent innovations in biotechnology and their potential implications for the future.

1. CRISPR-Cas9 and Gene Editing:

CRISPR-Cas9, a gene-editing technology, has been making waves in biotechnology for its precision and efficiency in modifying DNA. This tool allows scientists to target specific genes, making alterations that were once unimaginable. Researchers have already used CRISPR for creating genetically modified crops, curing genetic disorders, and even modifying the "NA of animals to study diseases.
In recent years, CRISPR has been improved with new techniques like CRISPR-Cas12 and CRISPR-Cas13, which offer greater specificity and reduced risks of off-target effects. In addition, there are ongoing efforts to develop CRISPR-based therapies for genetic diseases such as sickle cell anemia and cystic fibrosis, as well as for treating cancer.

2. Synthetic Biology:

Synthetic biology is an interdisciplinary field that combines engineering principles with biological sciences to design and build new biological parts, systems, or organisms. This cutting-edge technology allows for the creation of synthetic DNA, which can be inserted into organisms to perform specific functions.

Recent developments in synthetic biology have led to the production of biofuels, biodegradable plastics, and even medicines like insulin. The future of synthetic biology is particularly promising for sustainable practices. For instance, engineered microorganisms may one day be used to capture carbon dioxide from the atmosphere or clean up environmental pollutants.

3. Artificial Intelligence in Drug Discovery:

Artificial intelligence (AI) is transforming many industries, and biotechnology is no exception. AI is increasingly being used in drug discovery to streamline the process of identifying potential therapeutic compounds. Machine learning algorithms can predict how certain molecules will interact with biological systems, significantly reducing the time and cost involved in drug development.
AI-driven platforms like DeepMind have already shown success in predicting protein structures, a breakthrough that could have far-reaching implications in understanding diseases and designing new drugs. In fact, AI has already assisted in the identification of compounds for the treatment of diseases like COVID-19 and cancer.

4. Lab-Grown Organs and Organ Regeneration:

Organ transplantation remains a critical medical challenge, with donor shortages and the risk of organ rejection. However, advancements in tissue engineering and regenerative medicine are beginning to offer hope. Using stem cells and 3D bioprinting, scientists are working to create lab-grown organs that can be used for transplantation or to test new drugs.
The ability to regenerate organs in the lab could also lead to breakthroughs in personalized medicine, where patients' own cells are used to create customized tissues for transplantation, reducing the risk of rejection. Recently, researchers have successfully created simple organs like bladders and tracheas, with ongoing efforts to produce more complex organs like kidneys and livers.

5. Microbiome Engineering:

The human microbiome, consisting of trillions of bacteria and other microorganisms living within our bodies, plays a crucial role in health, including digestion, immunity, and even mental health. Understanding and manipulating the microbiome has become an area of intense research, with recent advances focused on developing microbiome-based therapies.
For example, fecal microbiota transplants (FMT) have shown promise in treating diseases like Clostridium difficile infections. Further research is exploring the use of probiotics and engineered bacteria to treat conditions like inflammatory bowel disease, obesity, and even autism. The microbiome's potential in personalized medicine could revolutionize how we treat a wide array of diseases.

6. Bioprinting:

3D printing technology has seen significant progress in recent years, and the field of bioprinting is one of its most exciting applications. Bioprinting uses living cells, biomaterials, and growth factors to create three-dimensional structures like tissues and organs. This has the potential to revolutionize medicine by providing more effective ways to test drugs, develop personalized implants, and eventually even create transplantable organs.
In addition to medical uses, bioprinting is also being explored in agriculture for creating lab-grown meat, which could help reduce the environmental impact of traditional meat production. The ability to produce sustainable and ethical food sources could be a game-changer for global food security.

7. Cell and Gene Therapies:

Cell and gene therapies represent one of the most exciting frontiers in medicine. These therapies aim to treat or even cure diseases by modifying a patient's cells or genes. Recent breakthroughs have brought gene therapies for rare genetic disorders like spinal muscular atrophy to market, offering new hope for patients who previously had limited treatment options.

Meanwhile, advancements in immunotherapy are transforming cancer treatment. CAR-T (Chimeric Antigen Receptor T-cell) therapies are revolutionizing how cancer is treated by reprogramming patients' own immune cells to recognize and attack cancer cells. Ongoing research in this field is aimed at making these therapies more effective, affordable, and accessible.

8. Biosensors and Wearable Biotechnology:

Biosensors and wearable technologies are increasingly being integrated into healthcare for continuous monitoring of patients' health. These devices track vital signs like heart rate, blood pressure, glucose levels, and even genetic markers in real-time. With advancements in miniaturization and data analysis, biosensors are becoming more precise, less intrusive, and more affordable. These technologies are not just useful for monitoring chronic conditions like diabetes, but also for early disease detection and personalized medicine. For example, wearables that track a person's genetic predisposition to certain conditions could provide real-time insights into health risks and preventive measures.

Conclusion:

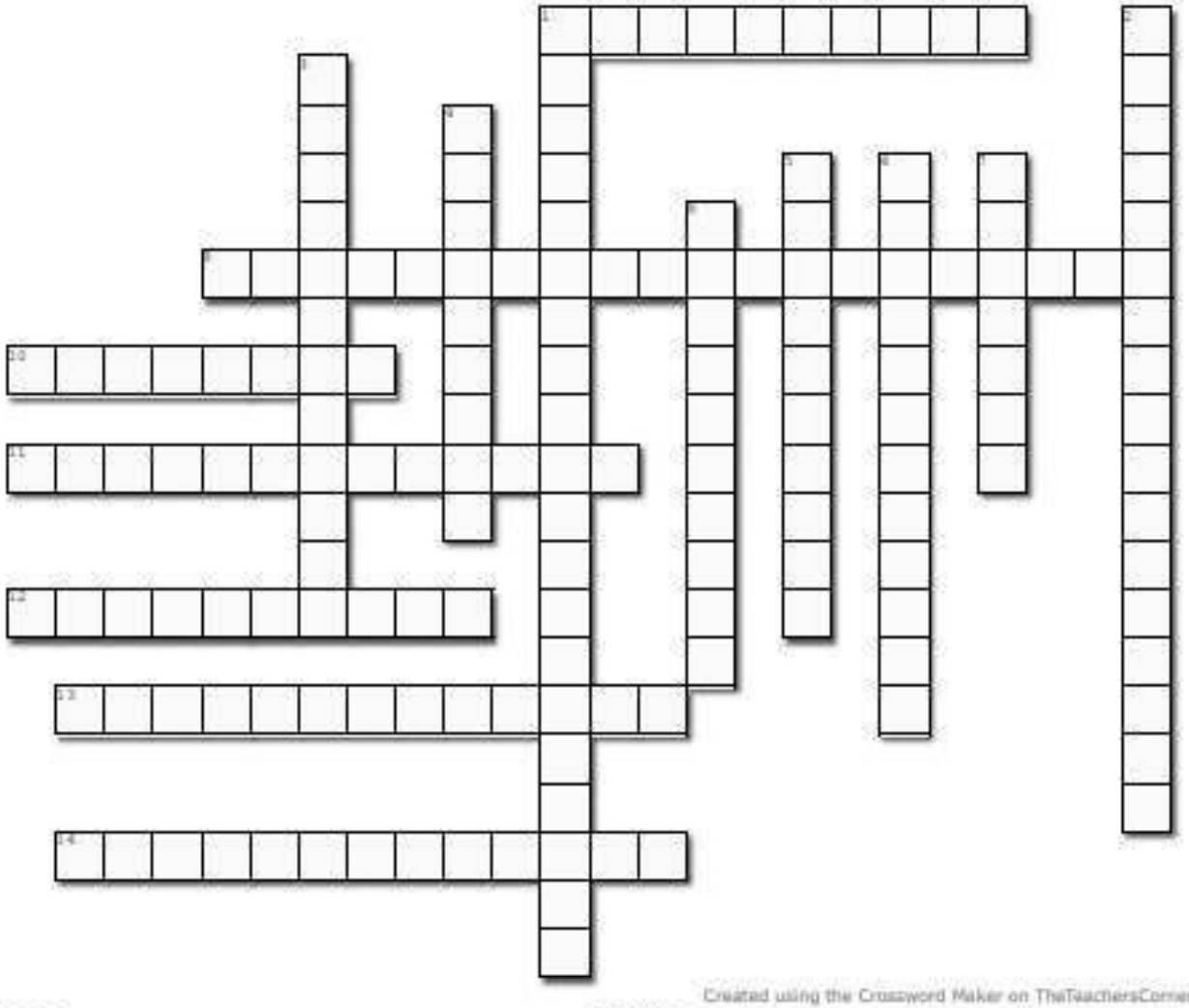
Recent advancements in biotechnology are reshaping our world in ways that were once thought impossible. From gene editing and synthetic biology to AI-driven drug discovery and lab-grown organs, these technologies hold the promise of solving some of humanity's most pressing challenges. As we move forward, the ethical and regulatory implications of these innovations will require careful consideration. However, the potential for biotechnology to improve health, protect the environment, and enhance our understanding of life itself is truly exciting.

As research in biotechnology continues to accelerate, the next decade could bring even more groundbreaking innovations that have the power to transform society in ways we are just beginning to imagine.

S.Atchaiah
23UBT016

Name:_____

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

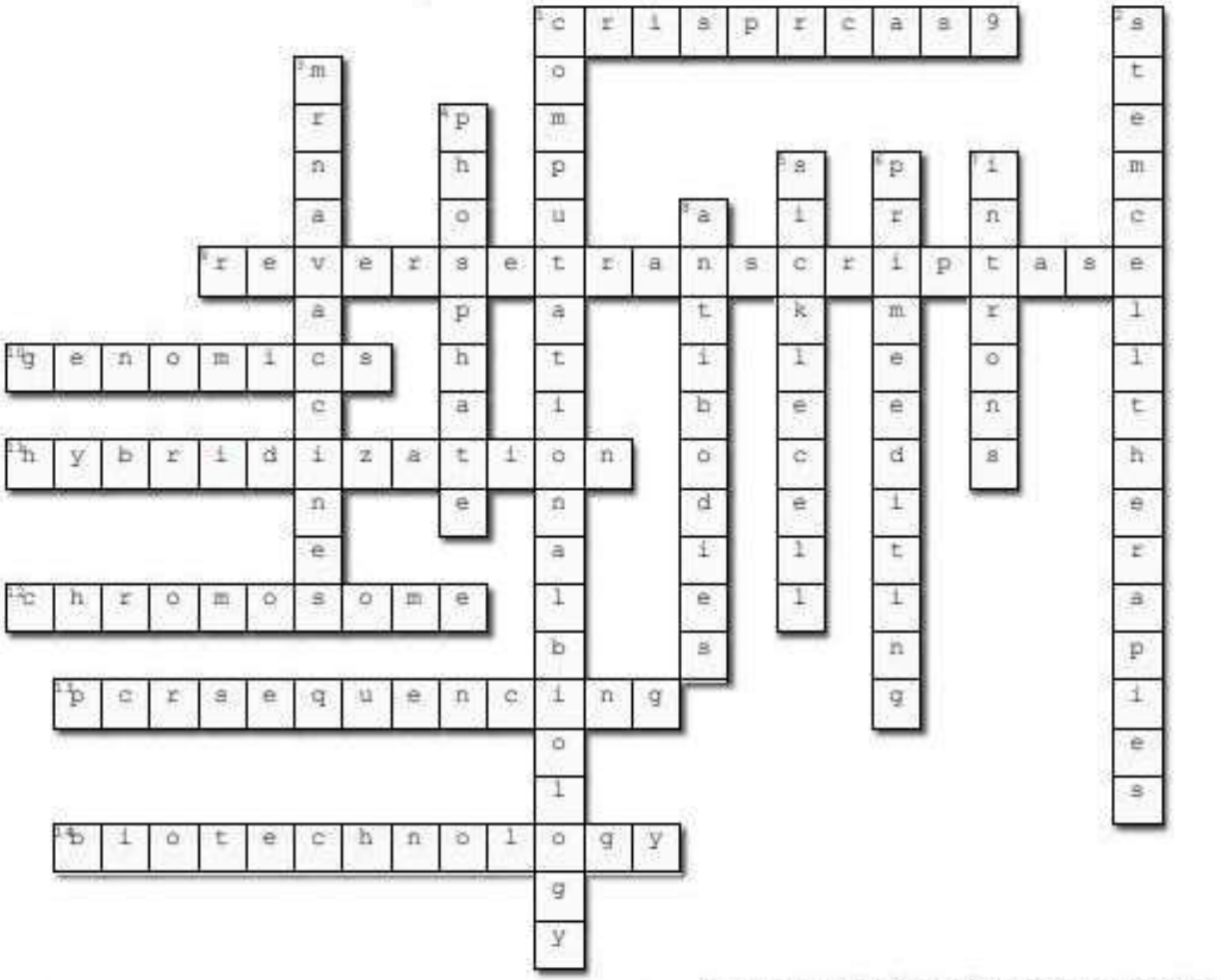
Across

1. Gene-editing tool revolutionizing medicine
9. enetic tool for copying RNA to DNA
10. Study of entire genetic material
11. Fusion of animal and plant cells
12. Cell component carrying genes
13. Technique for detecting single mutations
14. Fusion of biology and technology

Down

1. Field combining biology and computing
2. Genetic condition affecting red blood cells
3. accines made from genetic material
4. DNA component with a negative charge
5. Genetic condition affecting red blood cells
6. Editing technique targeting multiple genes at once
7. Non-coding DNA region in genes
8. Cancer-fighting proteins

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

Across

1. Gene-editing tool revolutionizing medicine (**crisprcas9**)
9. enetic tool for copying RNA to DNA (**reversetranscriptase**)
10. Study of entire genetic material (**genomics**)
11. Fusion of animal and plant cells (**hybridization**)
12. Cell component carrying genes (**chromosome**)
13. Technique for detecting single mutations (**pcrsequencing**)
14. Fusion of biology and technology (**biotechnology**)

Down

1. Field combining biology and computing (**computationalbiology**)
2. Genetic condition affecting red blood cells (**stemcelltherapies**)
3. accines made from genetic material (**mrnavaccines**)
4. DNA component with a negative charge (**phosphate**)
5. Genetic condition affecting red blood cells (**sicklecell**)
6. Editing technique targeting multiple genes at once (**primeediting**)
7. Non-coding DNA region in genes (**introns**)
8. Cancer-fighting proteins (**antibodies**)

G. selvamurugan
22UBT031

NEW INNOVATION IN BIO POLYMER TECHNOLOGY 2025

Bio-PET

Bio-PET is a substitute for virgin PET made from renewable raw materials. It uses the leftovers from sugar manufacturing or is derived from plant and vegetable sources that form chains of polymers. Such materials are durable, unbreakable, and transparent. They can be processed and recycled with existing systems and are also identical to PET in appearance and function. Startups develop bio-PET that use second-generation raw materials, such as forestry or agricultural waste products, to eliminate the need for virgin PET.

VERDE BIORESINS develops Durable Bio-PET

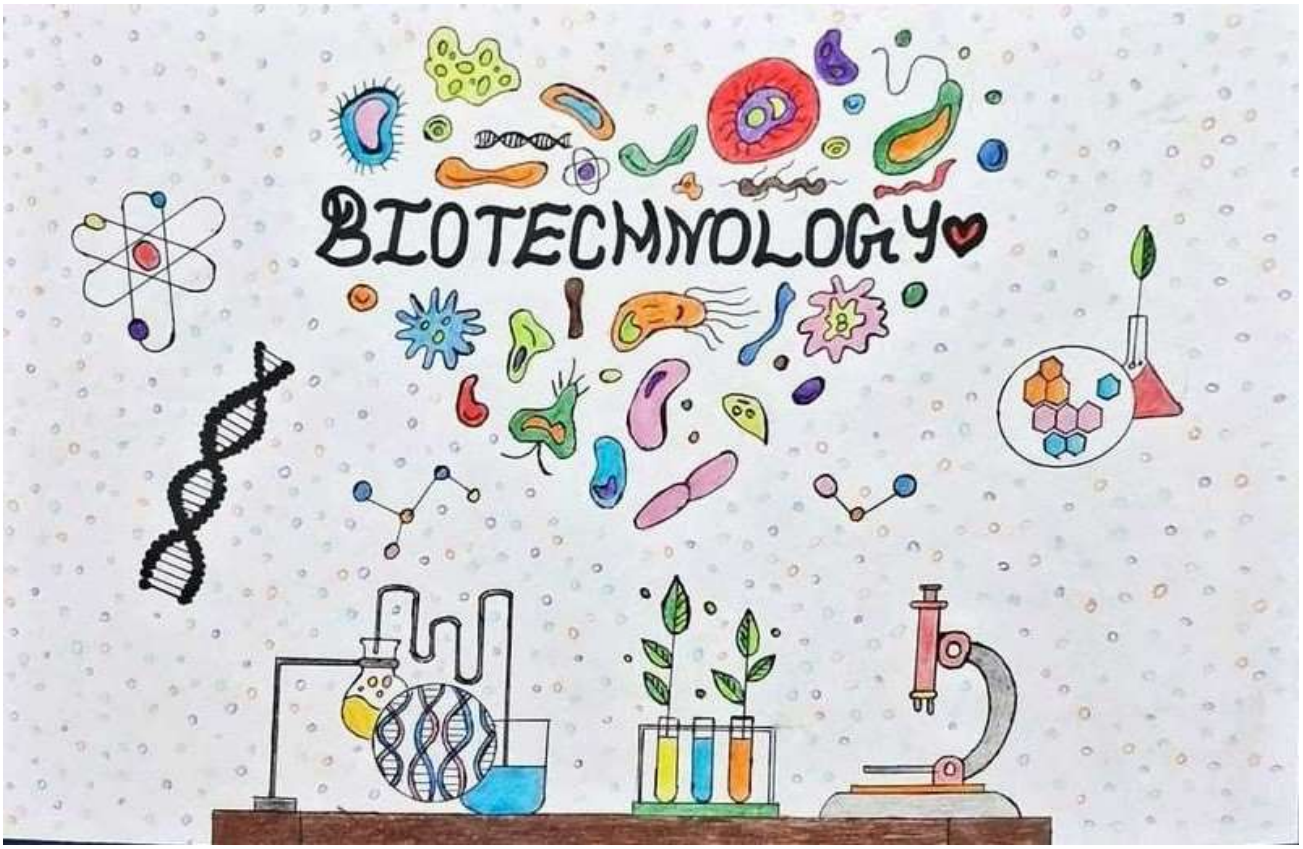
US-based startup VERDE BIORESINS produces PolyEarthylene, a plant-based sustainable and renewable biopolymer that finds applications for durable consumer goods. The material is environmentally friendly, economically more feasible, and lighter compared to petroleum-based polymers. The startup's bio-PET materials are competitive with other bio-based materials such as PLA, PHA, or green PE.

Biorgani produces Bio Resin

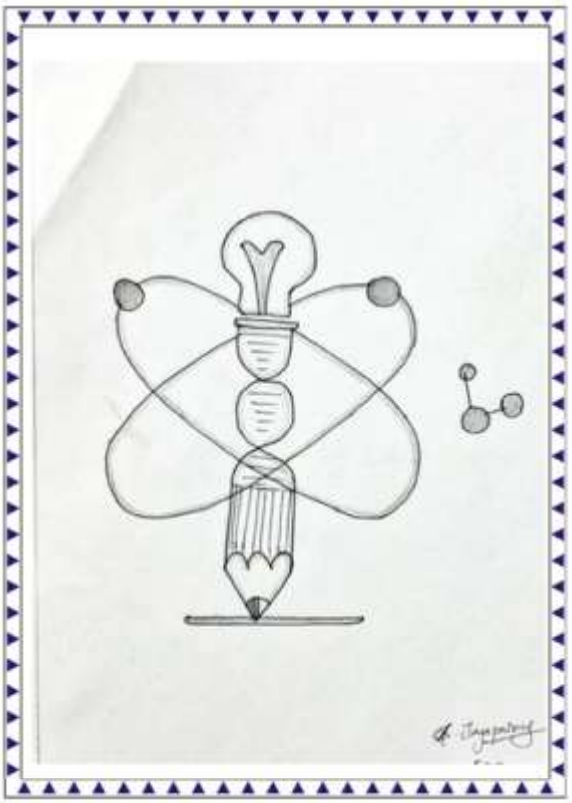
US-based startup Biorgani offers bio-resin for film-grade packaging. The startup's bio-based resin, FAUNNUS, is used as a filler with blends with conventional polyolefins. This results in a bio-based product with a lower carbon footprint that can match a conventional plastic's weight resistance and performance. It also manufactures a zero polyethylene resin, SOLUM Compost Resin, suitable for conventional plastic equipment. The production process of these bio-based materials requires less temperature and, in turn, saves energy and reduces manufacturing carbon emissions.

B.Manoj Harish
22UBT036

TECHMAG ARTS

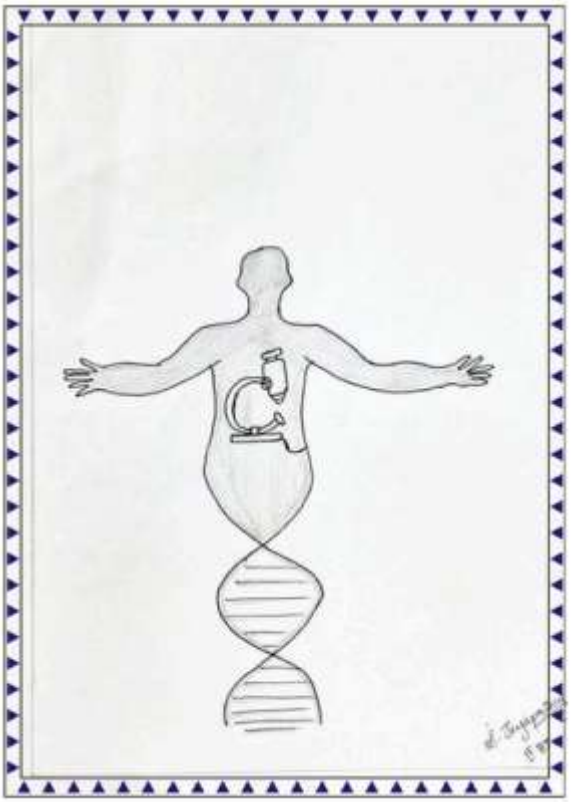


R.Rajapriyadharshini
23UBT029



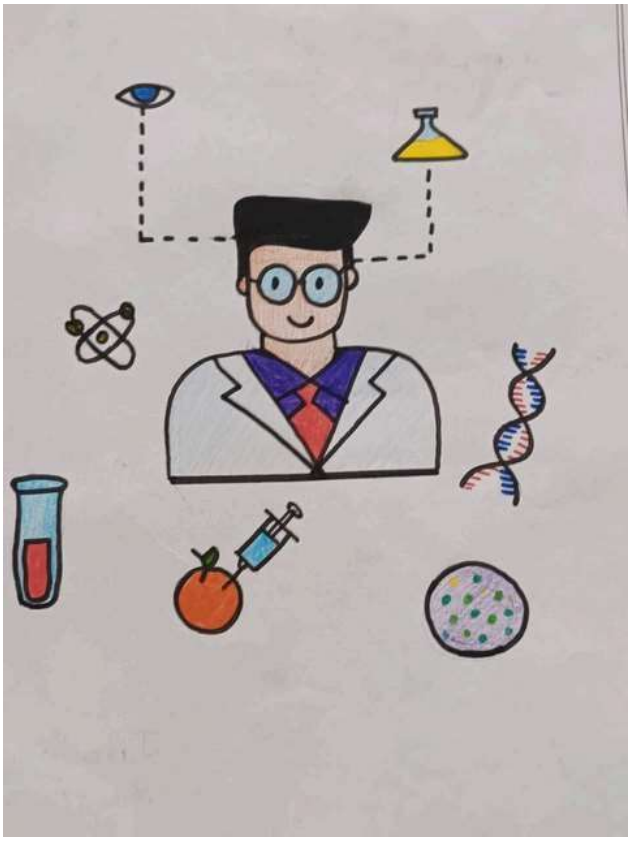
S.Jeyaprincy
22UBT035

S.Jeyaprincy
22UBT035



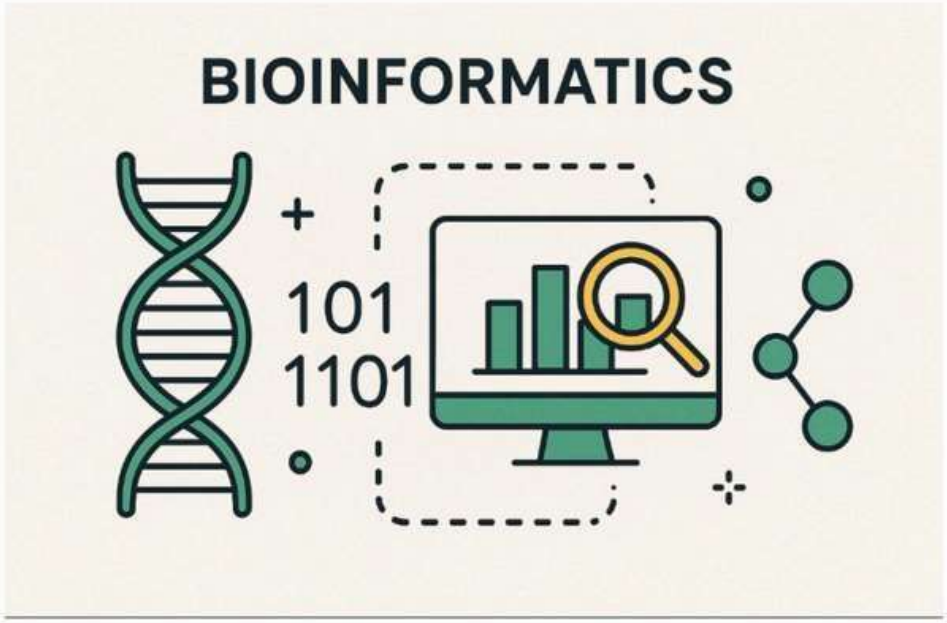
S.Jeyaprincy
22UBT035

S.Janani
23UBT050



J. Anantharaj
23UBT043

K.Dhivakaran
23UBT040



R. Gowtham Raj
23UBT033

N.Karanya
23UBT027