

ISSUE 01



December 2024

BIOHIVE

where science buzzes





SIGNIFICANCE AND SYMBOLISM OF THE LOGO:

The logo encapsulates everything we've dreamt of for Biohive.

Bees are known for hardwork, sense of community and friendship. That is precisely the team we hope to build through this initiative.

A beehive symbolizes strength found in unity, as the hive members work together harmoniously, supporting each other's contributions.

It is the kind of environment we hope to build at Biohive. The four colours in the logo represent the four departments with their apt elements.



Principal's Message

Dear Students, Faculty, and Readers,

It gives me immense pride to introduce the first edition of BIOHIVE, a vibrant testament to the scientific curiosity and relentless pursuit of knowledge within our institution's Departments of Life Sciences. Over the past year, the departments have conducted a variety of activities, reflecting the commitment of both our faculty and students to academic and personal growth.



The year has been buzzing with activities that exemplify the Department's dynamism. From the impactful events celebrating World Environment Day and Mendel's Commemoration Day to the insightful guest lectures on cutting-edge topics like vaccine technology, stem cell research, and intellectual property rights, we have provided platforms for experiential learning. These engagements have not only deepened our students' understanding but have also instilled in them a sense of purpose and responsibility toward societal development.

Our students have enthusiastically participated in various internships and workshops, including prestigious opportunities at IIT Hyderabad and collaborations with esteemed institutions. Their achievements outside the campus are a reflection of their dedication and the robust training they receive here.

Equally commendable is the research undertaken by our students, tackling topics ranging from antibiotic production by *Streptomyces* species to the exploration of bioactive compounds combating diabetic complications. These projects underscore our commitment to fostering innovation and addressing real-world challenges.

The departments have also expanded their efforts in career guidance through value-added courses, skill-building workshops, and networking opportunities with industry leaders. It is inspiring to witness our students explore diverse career pathways, fuelled by their curiosity and hard work. BIOHIVE serves as a buzzing archive of these accomplishments and memories, capturing the essence of teamwork, resilience, and discovery.

I extend my heartfelt congratulations to the editorial team for crafting this remarkable publication and to all contributors for sharing their talents. As we celebrate our progress, let us continue to embrace challenges and strive for excellence in the journey ahead.

With warm regards,
Dr G S V R K CHOUDARY
Principal, BVC





Heads of the Departments' Messages



It gives me immense pleasure to know that the students of Undergraduate, Life Sciences, have initiated a vibrant platform in the name of Biohive- an Undergraduate Life Sciences Digital Newsletter designed to connect, inform, and celebrate the Life Sciences community of BVC.

I am sure that our shared goal of spotlighting the diverse achievements, events, and opportunities within our institution and beyond, which are covered in this digital newsletter with a collaborative effort of students and faculty across the four dynamic

Departments of Genetics and Biotechnology, Chemistry, Microbiology, and Biochemistry and Nutrition, will be achieved. The students and faculty will participate actively and contribute to this platform, making it a collective voice for our Life Sciences community. Together, let us celebrate our shared passion for discovery, learning, and innovation. I urge all students to contribute enthusiastically to this initiative. Let this newsletter be a testament to your creativity, achievements, and passion for Life Sciences. We can create a resource that inspires, informs, and connects.

With best wishes,

Dr. K. Anuradha

Head, Department of Microbiology, BVC

I am extremely happy that B.Sc BtGC final Year student's have come up with the idea of a Newsletter exclusively for Life Sciences. This is a good platform for students to express their views and exhibit their talents in the field of Life Sciences. Also, this Newsletter can give information about the latest trends in research, career opportunities and interactions with alumni, scientists and experts from various fields of Life Sciences. Biology can provide solutions to most of the problems that humanity faces today.

There must be a resurgence in this field to motivate students

to pursue higher education, research and careers in Biology and allied Sciences. I congratulate all the Student Co-ordinators, especially Abhilaya & Nidish, who have put in enormous efforts to launch the Newsletter, and the Faculty Co-ordinators for bringing out the very first edition of BioHive.

May BioHive thrive, prosper, and inspire all Life Sciences students!

Best Wishes,

Dr. B. Kalpana

Head, Department of Genetics & Biotechnology, BVC





Heads of the Departments' Messages

Greetings to all! I am delighted that the life sciences students are launching the newsletter BioHive. This newsletter aims to create awareness about various life sciences activities where students play significant roles, whether curriculars or extracurriculars. The students of Biochemistry & Nutrition are always at the forefront, actively participating in outreach activities such as social issues, health, wellness, and nutrition. I deeply appreciate the team's initiative and enthusiasm in launching this publication and hope it continues to evolve as a vibrant platform.

I wish students all the very best!



Dr. A. Sai Padma,
Head, Department of Biochemistry and Nutrition, BVC



Dear faculty & students

It is with great enthusiasm that I welcome you to the inaugural edition of BIOHIVE—our very first Life Sciences newsletter, an initiative proudly led by the students of Life Sciences. BIOHIVE serves as a dynamic platform where innovation, discovery, and collaboration converge, showcasing the remarkable achievements of both our students and faculty.

In this issue, we celebrate the vibrant community driving scientific progress within and beyond our college. This newsletter reflects not only our commitment to excellence in science but also our

shared ambition to engage with cutting-edge advancements in the field.

I extend my heartfelt congratulations to everyone who has contributed to this endeavor—our talented authors, diligent editors, and the entire dedicated team behind its creation. Your hard work ensures that BIOHIVE will serve as a lasting source of inspiration for scientific exploration.

As you explore the pages of this edition, I hope you feel as inspired as I am by the creativity and determination that define our college. Together, let us continue to learn, innovate, and grow as we shape the future of science.

Warm regards,

Dr. Mary Nygi Kurian
Head, Department of Chemistry, BVC





Faculty Coordinators' Messages



Extremely happy for the co-founders Abhilaya, Shikha and Nidish of BtGC 3rd year whose untiring perseverance took the shape of a journal exclusive for Life Sciences. For them it is a dream come true. I congratulate the students of Life sciences for their extraordinary team work in bringing this edition.



Dr S Nagamanju
Assistant Professor
Department Of Biotechnology



Dr. Shruthy D. Pattathil
Assistant Professor
Department of Chemistry

BIOHIVE is more than just a newsletter, it serves as a forum for highlighting the remarkable achievements of our faculty and students. I hope you are as proud of and excited about the ingenuity and tenacity that characterize our college as I am when you read through the pages of this first edition.

Let's work together for a better future!

The BioHive Newsletter enhances students' academic journeys by sharing advancements in life sciences, showcasing achievements, and offering growth opportunities. Active student participation drives its success, making BioHive a symbol of collective learning, growth, and excellence. Together, we inspire progress and collaboration in life sciences.



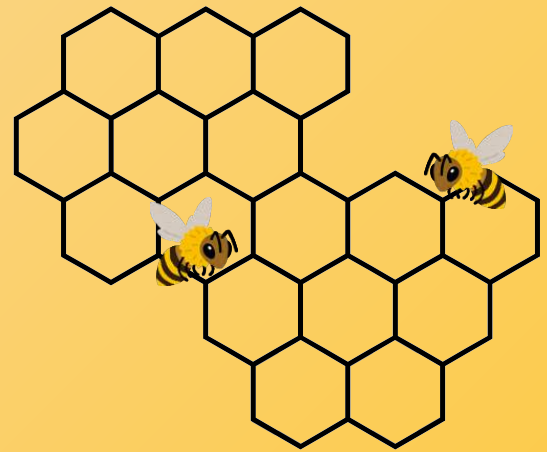
Dr T Chaitanya
Assistant Professor
Department of Microbiology



Dr. S. Manju Devi
Assistant Professor
Department of Biochemistry

It's indeed a happy moment to be part of the BioHive magazine. A short message for the enthusiastic life sciences aspirants: Embrace the unknown, keep exploring, and never stop reaching for the stars. The future is shaped by those who dare to dream and innovate. Let's build it together.

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The Career Conundrum

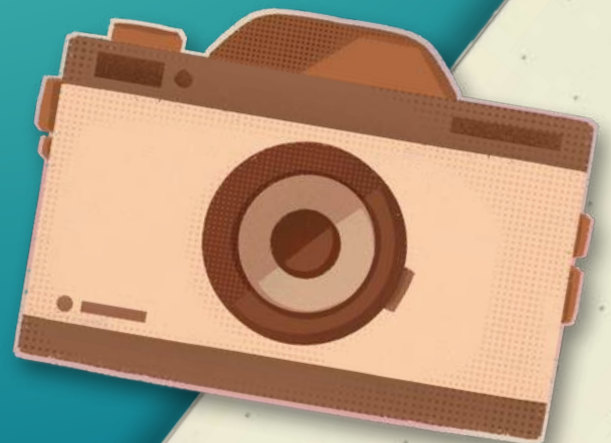
Dedicated to the career trajectory exploration





May-Oct 2024

EVENT O CLOCK



RASHTRAPATHI NILAYAM VISIT



On the 5th of June, 2024, the students of the gre-ENERGY club had the excellent opportunity to visit Rashtrapathi Nilayam for an awareness program. The day started with a pledge to protect the environment and create awareness about the dangers of single-use plastic. It was followed by inspiring talks by industry professionals. After planting saplings, the students spent the day exploring biodiversity in the beautiful premises of Rashtrapathi Nilayam.

WORLD ENVIRONMENT DAY VISIT BY GRE-ENERGY STUDENTS



MILLET LUNCH BOX



Jowar Idli by Mrs. B Niraimathi

The Department of Biochemistry & Nutrition, Bhavan's Vivekananda College, Sainikpuri, had conducted "Millet Lunch Box" to elevate the usage of millets under the Sustainable Development Goal Activity (Ensuring good Health and Well-being) 2024. "Millet Lunch Box" is an event where students and staff were asked to bring recipes made of millet in their lunch box daily for one week.

The event emphasized the practice of millet usage in daily cooking and created awareness of different millets available locally, which can be cooked into delicacies.



Jowar roti, Moringa dal and beet root curry by P. Hemalatha



Jowar, banana, and raisin smoothie by M. Sashi Varshan



Barn yard Millet Cutlet by K. Varsha

WORLD ENVIRONMENT DAY



The Department of Genetics and Biotechnology celebrated World Environment Day with extreme enthusiasm. The day started with a guest lecture by Ms. Farida Tampal, State Director of WWF India, to educate students about the importance of conserving biodiversity and spread awareness regarding sustainable development. A slogan writing and painting competition was conducted to encourage and challenge the student's understanding of the environment and to express their concepts via creative pathways.

WORLD BIOTECHNOLOGY DAY



To provide insights into entrepreneurship and startups in life sciences, a guest lecture by Founder and CEO of Ealkay Consulting, Mr. Baba Kishore Mutta was organized by the Department of Genetics and Biotechnology.



A Model Making Competition was also organized by the Department. The event took place at the Science Quadrangle, where each participant showcased and explained their models. Themes included molecular genetics, sewage treatment using waste, DNA replication, CRISPR techniques, and cloning.



MICROBIOLOGY OUTREACH



The Department of Microbiology, in collaboration with the Microbiologists Society of India, organized an outreach program at the Government Junior College in Malkajgiri.



BEYOND THE NAKED EYE "DISCOVERING THE MICROSCOPIC LIFE"



This program focused on the scope of microbiology, staining techniques, and probiotics. Several hands-on activities were organized. These sessions sparked enthusiasm, with students actively engaging in discussions and exploring career opportunities in microbiology.



MENDEL'S COMMEMORATION DAY



ANNOUNCING BIOHIVE - WHERE SCIENCE BUZZES



Day 1



Mendel's Commemoration Day Celebrations were organized by the Department of Genetics and Biotechnology to honor Gregor Johann Mendel. A guest lecture was organized with speaker Dr Ramjee Pallela, Chief Operating Officer (COO), Atal Incubation Centre - CCMB, on the topic "Emerging trends of innovation in Genetic & Genome based technology development". A quiz contest, which was a brainstorming session for students involving questions in all the fields of life sciences called Helix Havoc! was also conducted as a part of the celebration

Traits Trek



Day 2

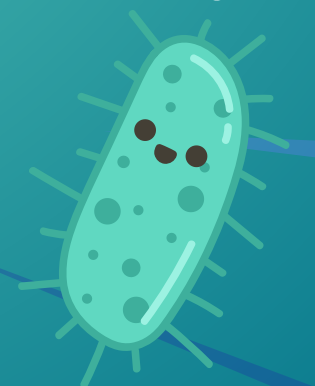


The Traits Trek treasure hunt was an electrifying event that brought together 150 enthusiastic participants from various departments, united by their curiosity for LifeSciences. Packed with thrilling clues and mind-bending puzzles, the hunt challenged students to unravel scientific mysteries. It wasn't just a test of knowledge but a celebration of teamwork and ingenuity. With energy and excitement at every turn, Traits Trek left everyone buzzing with unforgettable memories!

WORLD SJÖGREN'S DAY



The Department of Microbiology, in collaboration with the Microbiologists Society of India (MSI), organized an intercollegiate poster presentation competition to commemorate World Sjögren's Day. This event aimed to foster scientific curiosity and encourage students to delve into the intricacies of microbiology, particularly focusing on Sjögren's Syndrome, an autoimmune disorder.



GUEST LECTURE: ENTREPRENEURSHIP SKILLS FOR STARTUPS



The Department of Microbiology organized an insightful guest lecture titled "From Vision to Venture: Entrepreneurial Skills for Startups". The session was delivered by Mr. Ramesh, an inspiring entrepreneur who founded "Siri Diagnostics" and is currently pursuing research at Osmania University. The primary focus of the session was to provide students and aspiring entrepreneurs with practical knowledge on how to transform innovative ideas into viable business ventures, particularly in the healthcare sector.



HEALTH CHECKUP CAMP

The Department of Biochemistry and Nutrition, in collaboration with the Medical and Health Committee and Vimta Labs, organized a two-day Health Camp from 9 a.m. to 11 a.m. in the Biochemistry laboratory, open for students and faculty members. The camp offered six different health screening panels, providing participants with valuable insights into their overall health.



GUEST LECTURE: STEM CELLS AND REGENERATION



A guest lecture was organized by Department of Microbiology, BVC. The guest speaker, Dr Tripura, principal scientist, CSIR-CCMB, Hyderabad has elaborated on the topic “Stem cells and Regeneration”. She emphasized on various types of stem cells and its applications in the field of regenerative medicine. She also discussed about different career opportunities in the field of life sciences and allied branches. A total of 100 students from BSc and MSc Microbiology benefited from this lecture.



BIOHOUSIE & QUIZ RIZZ

The Department of Biochemistry & Nutrition as part of Science club activity has organised an event named as Biohousie and QuizzRizz on September 10th, 2024. Biohousie was a tambola competition using life science questions. Quizz Rizz was a quiz competition, to analyse the knowledge of the students on life sciences topics.



GUEST LECTURE: STRATEGIC USE OF IPR FOR CHEMICAL RESEARCH AND DEVELOPMENT



Dr. Radhika Vangala



A guest lecture by Dr. Radhika Vangala, IPR Manager, BITS Hyderabad on intellectual property rights was organized by the Department of Chemistry. Students learned about the strategic use of IPR in chemical research and development. The major topics covered and discussed were Intellectual property and its rights, types of IPR, Copyrights, Trademarks, Trade secrets, Infringement, Patents and IPR in chemistry.



RASHTRIYA POSHAN MAAH



As part of the Rashtriya Poshan Maah celebrations, the Department of Biochemistry and Nutrition organized a series of events aimed at raising awareness about nutrition and promoting healthy eating habits. The event started with the Principal and HOD, addressing the crowd, followed by a guest lecture by Dr. V.R. Shamana. A seminar on “Ensuring Healthy Growth in Children through Complementary Feeding” held at 10:00 AM, focused on the importance of introducing solid foods alongside breastfeeding for children’s growth.

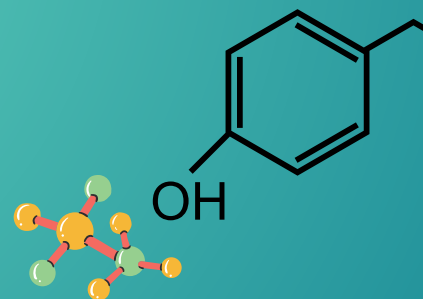
Nutri-Chef & Nutri-Hunt



As a part of the Rashtriya Poshan Maah celebrations, a nutrition-themed treasure hunt called "Nutri Hunt" attracted 116 participants, who formed teams of 4. The event was organized in three rounds, with teams collecting clues and answering nutrition-related questions. The top 3 teams advanced to the final round, where they solved a puzzle to win the event. The final event, "Nutri Chef," held at 2:00 PM in the Science Quadrangle, featured 20 participants competing in three rounds to create nutritious dishes.

MAYCHEM

The Department of Chemistry organized a Science Club Activity titled “Maychem – Where chemistry meets mayhem!” with the aim of creating awareness among students on the basics of chemistry. The primary objective was to help students have a look back on the basics of chemistry and give them confidence on the subject. Over 11 enthusiastic teams from B.Sc. Life Sciences and B.Sc. Physical Sciences took part.



REACTIVE RELAY

“Reactive Relay - React, Relay, Conquer: Where Every Second Counts!” with the aim of creating awareness among students on the fundamentals of Chemistry. The primary objective was to help students explore their knowledge on the basics and fundamentals of Chemistry and Biology. The event received a good response, with over 8 teams from B.Sc. Life Sciences & BCA.



MICROBIAL ODYSSEY



The Department of Microbiology in collaboration with the Microbiologists Society of India (MSI), organised a quiz competition on the occasion of International Microorganisms Day. The captivating quiz competition, titled “Microbial Odyssey: Unlocking the Secrets of Science”, was aimed at raising awareness about the fascinating world of microorganisms and their immense significance in various scientific domains.





LAB CHRONICLES



DEPARTMENT OF

MICROBIOLOGY

FINAL YEAR THESIS



The threat of drug-resistant bacteria, particularly those found in wastewater treatment facilities and the ambient air, has been a growing concern for public health. This research aimed to evaluate the microbial diversity present in various water bodies and their reaction to pharmaceutical antibiotics. In the realm of aquatic ecosystems, such as ponds, there exists a rich tapestry of life, encompassing a wide array of organisms from bacteria to algae. Bacteria are notable for their tendency to form colonies, a behaviour observed not only in natural habitats but also within our own bodies.

The study involved collecting water samples from five distinct locations, some of which were impacted by sewage contamination. The goal of this study was to isolate and characterize the bacteria found in pond water, utilizing techniques like Gram staining to determine their morphology, antibiotic susceptibility, and resistance patterns. These findings are crucial for understanding the microbial landscape and addressing the challenges posed by bacterial contamination in various environments.



Gram positive bacteria identified

Faculty Incharge:

Dr. K. Deepak Raj

***Isolation, Characterization
and antimicrobial profile of
bacterial species from
different water samples***

Group: Satyaprasad Sahoo, Nithin
Kumar, P. Prerna, K.L ikitha, A.
Kavyanjali

Life on Earth is intrinsically linked to the availability of water and oxygen, the latter being the only known elements that support life. Water, in particular, is vital for all known forms of life, and its absence for even a day can be fatal. Despite its importance, the planet faces a dire shortage of clean, drinkable water. Modern water sources are often teeming with contaminants, including a plethora of microorganisms.



Environmental-friendly Handmade Paper

Agricultural wastes are plant residues, originating from arable land, as horticulture is considered one of the biggest problems of society.

Green nanotechnology-based approaches using waste materials have been accepted as eco-friendly and cost-effective approaches with diverse applications. In the past few years, agricultural wastes like pineapple leaves, rice bagasse, grass bagasse, and groundnut shells have been used to prepare handmade paper, which is a non-polluting synthetic process. The quality of the handmade paper was checked by determining GSM, Tensile Strength, Burst Index, Brightness and Opacity, and Smoothness.

The paper with the highest quality check was used for making storage trays. Further, the handmade paper was coated with silver nanoparticles synthesized from Onion peel by green synthesis and checked for its food-storing ability.

Therefore, the prepared handmade paper can serve as an alternative biodegradable packing material for short-term packing required for storage of low-shelf-life products. Thus, handmade paper serves as an environmentally friendly substitute for the use of non-renewable and non-biodegradable packing material. This study has further applications in the packing industry.

Agri-waste-based raw materials for the production of paper, using Okra as a binding agent

Faculty Incharge:

Dr. T. Chaitanya Kumari

Group: Bobbili Anusha,
K.Mounika, P.Yoshith,
Deshmukh Abuzar Ali,
Nandhini Kumari



The prepared handmade paper



Streptomyces: Antibiotics and Resilience

This research examined the antibiotic production capabilities of *Streptomyces* species, focusing on media optimization and bioactivity testing against pathogens like *Staphylococcus aureus*, where significant inhibition was observed. Thin Layer Chromatography (TLC) techniques were optimized for effective compound separation, enabling the identification of antimicrobial agents with promising effects on resistant pathogens.

In a complementary study, *Streptomyces* and *Trichoderma* inoculants were tested for their ability to enhance drought tolerance in corn and sunflower plants. Results indicated increased growth and resilience under drought conditions, underscoring the potential of these microbial inoculants to support sustainable agriculture practices. The findings suggest that these microorganisms not only mitigate the effects of environmental stress but also contribute to improving crop productivity in resource-constrained settings.

This research underscores the dual utility of *Streptomyces* species, highlighting their antimicrobial applications and their capacity to promote plant growth under stress. By integrating these findings into agricultural and medical frameworks, researchers can harness microbial solutions to address challenges in global food security and antibiotic resistance.

Investigation of Antibiotic Production and Plant Growth-Promoting Potential of *Streptomyces* Species

Faculty Incharge:

Dr. S. Shalini Devi

Group: Karthik Raj,
Niharika, Kanchana,
Samuel, Navya

This research highlights both the antimicrobial applications of *Streptomyces* and its role in promoting plant growth under stress.



Trichoderma: Agriculture's Microbial Ally

Trichoderma is defined as the genus of symbiotic, opportunistic, and avirulent microorganisms that colonize the roots and is present in all types of soils. It has important role in stimulating plant growth, improving nutrient utilization efficiency, enhancing plant resistance and improves agrochemical pollution environment.

These are the most prevalent culturable fungi for use as bio fungicides as they can control many soil-borne diseases as well as some leaf and panicle diseases of various plants. Similarly, genus Streptomyces, which is the most abundant and arguably the most important actinomycetes, is a good source of bioactive compounds, antibiotics and extracellular enzymes.

These genera have shown over time great potential in improving the future of agriculture. A consortium of these two cultures helps in augmenting crop yield. These organisms can be exploited through strain improvement strategies for improving plant growth promotion.

In the present study, we have performed media optimization studies with the above organisms. UV mutagenesis was employed with Trichoderma to obtain better plant growth promoting traits in terms of enzyme production.

Faculty Incharge:

Dr. K. Mahalakshmi

**Optimization of media for
Mass Multiplication and
Strain Improvement of plant
growth promoting microbial
inoculants**

Group: Gudari Giridhar,
Vallepu Sai Surya, Chokkrapu
Saketh, Erukulla Meghana,
Shruthishree Swain



Media Optimization performed
with Trichoderma



DEPARTMENT OF GENETICS AND BIOTECHNOLOGY



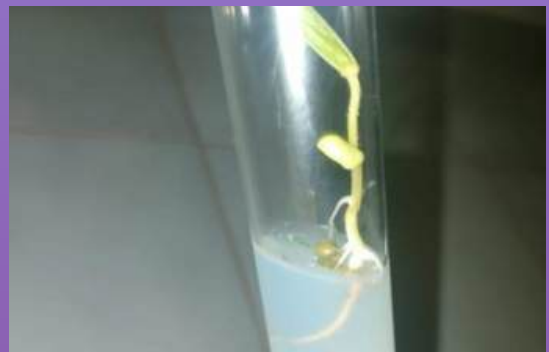
The project works that were supervised by Dr. Sushma Patkar included Invitro seed germination in *Vigna radiata* using plant tissue culture, testing agar as a suitable media for invitro seed germination and preparation of Masala Beer using Biryani spices.

The study indicated that usage of 50% sodium hypochlorite as a surface sterilant gives better results when compared with 30% or 10% sodium hypochlorite solution. The second study reported that agar media with sucrose supplementation can be suitable alternatives to MS media.

This can reduce overall cost of the project. Masala beer prepared from spices was flavourful and had 3.4% alcohol. The taste and foam were comparable with commercial beer.



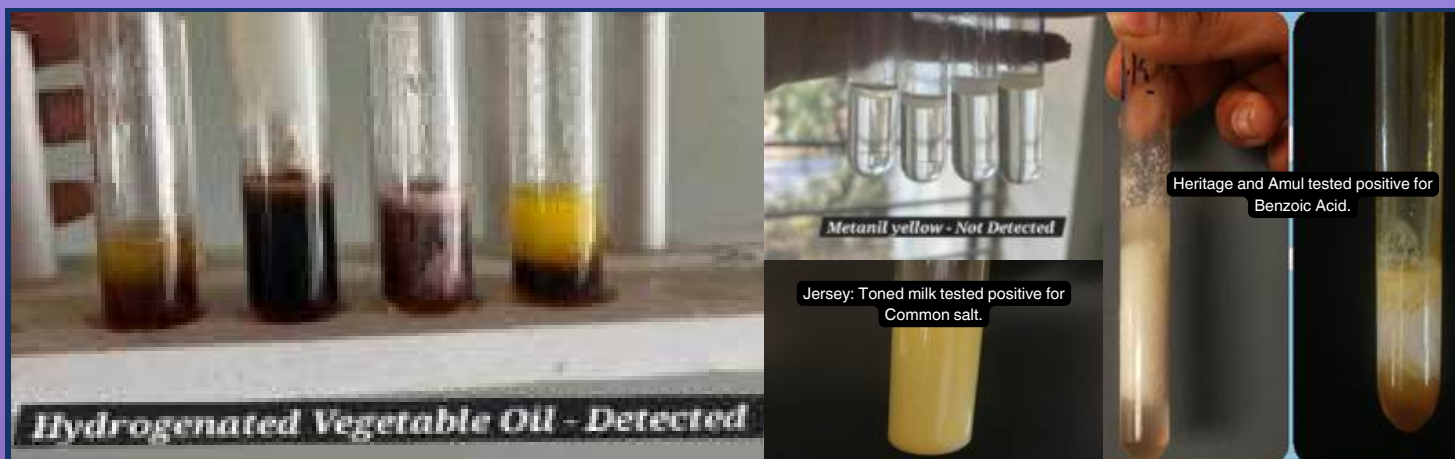
FINAL YEAR THESIS



Faculty Incharge:
Dr. Sushma Patkar

1. INVITRO SEED GERMINATION IN *VIGNA RADIATA* USING PLANT TISSUE CULTURE - ABHISHEKA DASH, SAI SIDHARTH, ANIKETH
2. TESTING AGAR AS A SUITABLE MEDIA FOR INVITRO SEED GERMINATION - ADITYA, VAISHNAVI, LAHARIKA
3. PREPARATION OF MASALA BEER USING BIRYANI SPICES - ZUBEAR, DIVYASREE, KARTIK AND LOKESH





Hidden threat of Food Adulteration

Food adulteration poses a serious global threat, compromising the safety and quality of essential items. Adulteration involves adding inferior substances to food for cost reduction or deceptive enhancement, affecting consumer health. This practice is prevalent across production and distribution stages, with harmful contaminants diminishing nutritional value and introducing health risks.

Fats and oils, like ghee and mustard oil, are commonly adulterated with starch, palm oil, or carcinogenic agents like Argemone oil, that cause digestive issues, allergic reactions, and even cancer. Economically motivated adulteration often relies on cheap, harmful substitutes, detectable through chemical tests revealing contaminants like paraffin wax in butter or synthetic dyes in spices.

A related concern is milk adulteration, where substances such as water, detergents, formalin, and synthetic chemicals compromise quality and safety. Studies have shown that leading milk brands contain edible adulterants like salt and sugar, and hazardous chemicals like benzoic acid, leading to serious health issues like diabetes, hypothyroidism, and gastroenteritis.

Projects by students and studies highlighted the need for stricter regulations and consumer vigilance to combat adulteration. Opting for reputable brands, reading labels, and avoiding unnaturally long shelf-life products are vital steps to ensure food safety and public health.

IDENTIFICATION OF COMMON ADULTERANTS IN PACKAGED MILK SAMPLES

Faculty Incharge:

Dr. B. Kalpana

Group: Astha Gungun Patel, M. Vidhisha

ADULTERATION IN FATS AND OILS

Faculty Incharge:

Dr. B. Kalpana

Group: Ankitha Nath, Prabhjote Kaur, M.S. Prerna, D.Vaishnavi



Organic Farming

Organic farming is an agricultural approach that avoids the usage of chemicals such as pesticides and fertilizers. It emphasizes natural processes, different life forms and sustainable practices to grow crops and raise life stock.

Organic farming consists of the usage of crop rotation, compost and biofertilisers (biological pest control). Comparative study of Organic farming and Hydroponics in a controlled environment and an uncontrolled environment was done to point out the different factors that play a vital role in the healthy growth of the plants and vegetables.

The project aimed to promote organic farming and was conducted on our college campus, where students cultivated select vegetables both in controlled (polyhouse) and uncontrolled environments.

Their experiences highlighted the unique growth conditions different vegetables require, providing valuable insight into organic farming practical aspects and the challenges of polyhouse farming, which led them to initiate terrace farming to increase yield.

The organically grown vegetables were marketed and sold within the campus and a decent revenue was generated. The present project turned out to be a self funded project as it gave the opportunity to marketize the yield.

Marketizing the vegetable plantlets and the yield they produced” under the supervision of Dr.S. Nagamanju

Faculty Incharge:

Dr. S. Nagamanju

Group: Nikhat, Debasish, Jyothi, Khushboo, Rashmi, Nafisa, Nizam and Akshay.



Sale of Plantlets



Organically grown cauliflower



The Biogas Project

Biogas is a methane-rich gas produced from microbial digestion of waste (agricultural, sewage, and landfill) which can be used for power production. Biogas promises to be a cheap, efficient, and eco-friendly fuel. Biogas production is influenced by the biomass of methanogenic bacteria in the conversion of organic matter contained in a digester.

The focus of the present study was to isolate and identify the potential methanogenic bacteria that show biogas generation via anaerobic digestion using standard microbiological methods. The cow dung and buffalo dung samples were procured from the temple, cowshed, and farm in a sterile plastic container and transported to the laboratory for analysis.

Morphological and microscopic studies were carried out to identify isolated bacteria. Gram staining revealed the presence of Gram-positive and Gram-negative Methanococcus and Methanobacillus sp. respectively. Antibiotic sensitivity tests showed that the isolated bacteria were found to be resistant to antibiotics like chloramphenicol, streptomycin, and ampicillin and were susceptible to antibiotic tetracycline.

The total quantity of biogas produced by anaerobic digestion was 23.8 g per 2kg of cow dung. A gas chromatography test confirmed the presence of methane in biogas. Hence, the results revealed that the generation of biogas from cow dung is potentially a good, cheap, and alternative source of fuel or energy.

Comparative studies on isolation, identification, characterization of methanogenic bacteria and production of biogas from cattle dung

Faculty Incharge:

Mrs. D Metilda Rosalin

Group: Vajran, Lokeshwari,

Prathusha, Manaswini,

Nikitha



Confirming the flammability of the produced Biogas



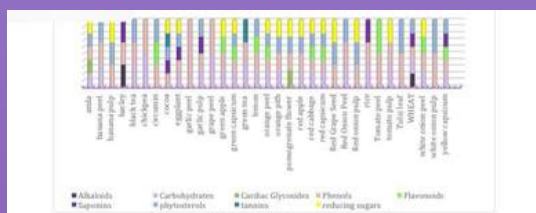
DEPARTMENT OF BIOCHEMISTRY AND NUTRITION



Flavanoid Analysis

Diabetes mellitus is one of the most commonly known metabolic disorder. The risks of diabetes are increasing every day, according to 2023 statistics, 77 million individuals in India had diabetes. Hyperglycemia and poor blood glucose control results in various complications in human body. Diabetic nephropathy comes under microvascular complications caused by diabetes, that affects the small vascular of kidney. Earlier studies revealed that diabetic nephropathy (polyuria) occurred due to increase certain enzymes like hyaluronidase, heparinase, lipase and α amylase. The present study focuses on the inhibitory effects of phytochemical compounds extracted from 32 different plant samples on hyaluronidase and α amylase enzymes and its potential application to reduce polyuria condition in diabetic individuals. For hyaluronidase enzyme, Cocoa exhibited the highest inhibition 91.49% relative to the standard, whereas tomato pulp showed the lowest inhibition 16%. For α -amylase inhibition, barley showed 100% relative inhibition comparatively Curcumin

FINAL YEAR THESIS



Phytochemicals present in plant samples

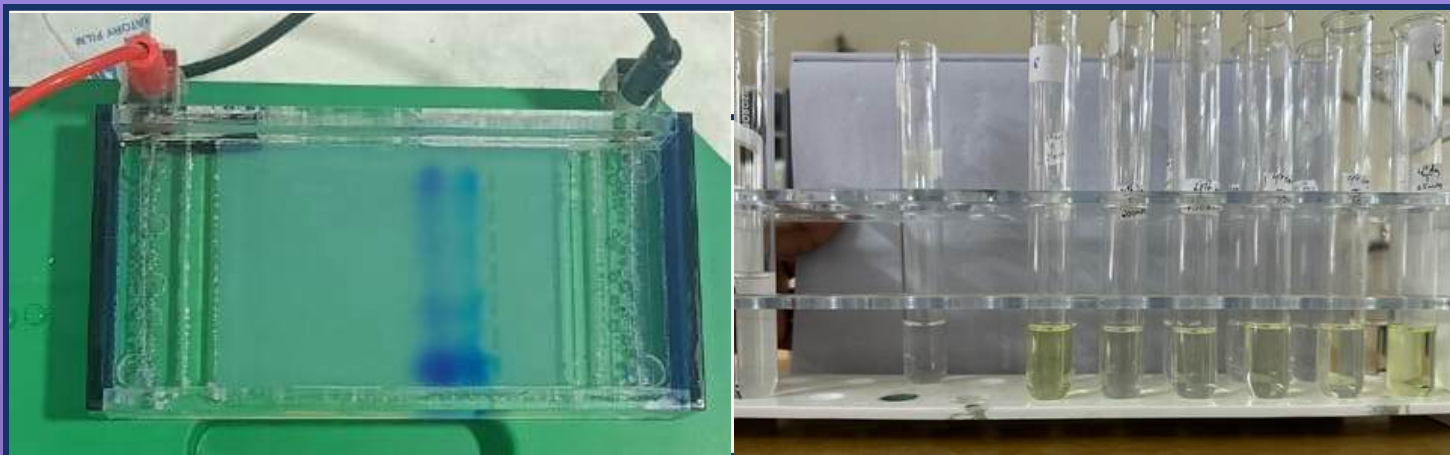
Faculty Incharge:

Dr. Kamala Golla

Study on Bioactive Compounds as Enzyme Inhibitors for Diabetic Therapy

Group: P Supreetha, Y
Akanksha, Vinay Singaram,
C Parama

By understanding how these plant-derived compounds interact with enzymes and impact glucose metabolism, researchers can develop innovative approaches to diabetes management. Utilizing natural compounds as functional foods or nutraceuticals provides a promising avenue for complementing traditional therapies and promoting overall health in individuals with diabetes.



Salinity Stress and Fenugreek

Fenugreek (*Trigonella foenum-graecum* L.) is a yearly herbaceous plant native to Legume family, known for its antidiabetic, cholesterol-lowering, anti-atherosclerotic, mild antimicrobial, and emollient properties. This study examined the impact of salinity on fenugreek seed germination, focusing on the activities of antioxidant enzymes, acid phosphatase, and phytase under varying NaCl concentrations (25, 50, 100, 150, and 200 mM) over 10 days. Results indicated that, as NaCl concentration increased, germination percentage, seed vigour index, shoot and root length decreased. Maximum activity of antioxidant enzymes like catalase and superoxide dismutase were noted. Concentration of phosphorus was observed to be balanced across all days and NaCl concentrations as it is an indispensable element for the synthesis of proteins, nucleic acids and phospholipids crucial to overcome seed dormancy and stimulating development of seeds. This equilibrium must have been facilitated by the coordinated activities of acid phosphatase and phytase.

Micro-encapsulated phytase characterized using SEM revealed that, microspheres were spherical, averaging 2.42 μm in diameter and its surface resembling leaf veins with uniformly spaced pores. FTIR spectra confirmed the presence of functional groups contributed by chitosan and alginate.

Under salinity stress, increased activity of acid phosphatase and phytase, coupled with balanced phosphorus levels, is essential for successful seed germination and subsequent plant growth.

Germinating *Trigonella foenum-graecum* L (Fenugreek) seeds and its Immobilization by Chitosan coated Microspheres

Faculty Incharge:

Dr. S. Vanitha

Group: Khushi Bansal,
Ricika Kumari, Ala Hemanth
Manindra

This study showed that salinity reduced fenugreek seed germination, but enhanced antioxidant enzyme activities and balanced phosphorus levels, driven by acid phosphatase and phytase, support seed germinations and subsequent plant growth



Presentation of Projects by UG students-National Science Day, 2024

Vitamin A and Diabetic Retinopathy

Type-2 Diabetes Mellitus presents a significant public health challenge worldwide, with its complications posing substantial burdens on affected individuals and healthcare systems. Among these complications, diabetic retinopathy stands out as a leading cause of vision impairment and blindness. This study investigated the association between diabetes and its ocular complications with the consumption of vitamin A or its precursor, β -carotene.

Through a multifaceted approach, including experimental estimation of β carotene in unconventional green leafy vegetables, a food frequency survey among diabetic patients, and a review of relevant literature, it aimed to elucidate the potential role of dietary factors in mitigating diabetic eye issues. The experimental findings revealed varying levels of β carotene across different green leafy vegetables.

Analysis of the food frequency survey data indicated a concerning trend: decreased consumption of vitamin A or β carotene-rich foods correlated with an increased prevalence of eye-related issues among diabetic individuals. Moreover, our review of existing research underscored the positive correlation between increased intake of vitamin A or β carotene and reduced incidence of diabetic retinopathy. These findings underscore the importance of dietary interventions in diabetes management, particularly in preserving ocular health. Promoting the consumption of unconventional green vegetables rich in vitamin A could serve as a viable strategy in diabetic complications such as Diabetic Retinopathy.

Association of consumption of foods rich in beta-carotene and the prevalence of eye-related issues in diabetes

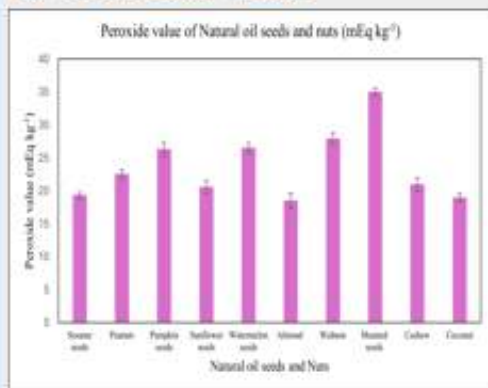
Faculty Incharge:

Mrs. V Revathi

Group: K. Sai Anirvin Reddy,
Sneha S., Venkatesh Prasad
M., Shyam Sundar Paul

This study provided insight into the role of nutrition in mitigating diabetic complications

a. Peroxide Value



b. Thin Layer Chromatography



Lipids: Natural vs. Processed

This study investigated the lipid composition of natural foods, such as oil seeds and nuts, compared to processed foods, with a focus on the implications for human health. Lipid extraction, peroxide value analysis, and chromatographic techniques were employed to assess the lipid profiles of various food samples. The results revealed that natural foods exhibited higher lipid content compared to processed foods, suggesting potential nutritional benefits associated with their consumption.

Peroxide value analysis indicated that processed foods have elevated levels of oxidation products, likely due to prolonged storage and repeated use of cooking oils. Thin layer chromatography (TLC) and high-performance liquid chromatography (HPLC) analyse demonstrated differences in lipid composition between natural and processed foods.

Natural foods contained a greater diversity of lipid components, while processed foods exhibited altered fatty acid profiles, potentially influenced by cooking methods such as frying.

Gas chromatography (GC) analysis further confirmed the presence of various fatty acids in both natural and processed foods.

Interestingly, minor amounts of trans fatty acids were detected in one food sample, highlighting the impact of food processing techniques on lipid quality.

Extraction and Identification of fatty acids in Natural, Processed and Ultra-processed foods using HPLC and GC

Faculty Incharge:

Dr.S. Vanitha

Group: Lakshmi Kumari,
Harsh Jain

The study highlighted the lipid composition of natural foods in comparison with processed foods, thereby, suggesting the nutritional benefits associated with their consumption.



DEPARTMENT OF

CHEMISTRY



The Department of Chemistry is involved in various cutting-edge research projects that focus on advancing scientific knowledge and addressing global challenges, particularly in areas related to sustainable development. Here are the key areas of research and some of the specific research initiatives carried out in the department in the last academic year 2024:

One study focused on synthesizing and characterizing p-toluene sulfonic acid (PTSA)-doped polyaniline (PANI), a conductive polymer recognized for its wide-ranging applications in electronics and sensor technologies. The incorporation of PTSA significantly enhanced the conductivity and stability of PANI, thus broadening its applicability in advanced materials.

This research employed analytical techniques such as UV-Vis and IR spectroscopy, as well as thermal analysis, which revealed improvements in the dispersion and stability of the polymer due to PTSA doping.

FINAL YEAR THESIS



Project Supervisors:

Dr. Mary Nygi Kurian

Dr. Aruna Priya Lakkadi

Ms. D. Rajeshwari

Ms. Prerana Loomba

Dr. Shruthy D Pattathill

Ms. C.V.L. Shivani

Furthermore, the study examined the integration of PANI into polyester fabric, resulting in the creation of a smart material with enhanced properties. Through the investigation of various PTSA concentrations, optimal conditions for the incorporation of PANI were identified, indicating great potential for the development of flexible, lightweight, and highly conductive fabrics for use in advanced technological applications.



Pyrimidinedione, MOFs, Polyaniline Synthesis

Synthesis of a pyrimidinedione derivative (3a) was performed using a common scaffold, specifically 1-[(benzyloxycarbonyl)methyl]-1,2,3,4-tetrahydro-2,4-dioxypyrimidine-5-carboxylic acid (1).

This process involved an acid-amine coupling reaction with an amine (2a). HATU was used as the coupling reagent, and N-Methylmorpholine served as the base in dimethylformamide (DMF) at room temperature for 3 hours. The reaction successfully yielded the desired derivative in good yield. The structure of the synthesized pyrimidinedione was confirmed through spectroscopic techniques, including Fourier-transform infrared spectroscopy (FT-IR) and proton nuclear magnetic resonance ($^1\text{H-NMR}$).

Another study focused on the synthesis of Schiff bases using terephthalaldehyde and amino isophthalic acid. This process led to the development of unique metal-organic frameworks (MOFs) that incorporated Schiff base networks. The MOFs were created by reacting the Schiff base with cobalt and zinc metal salts, resulting in the formation of cobalt and zinc Schiff base MOFs. These frameworks were characterized using scanning electron microscopy (SEM) and Fourier-transform infrared (FT-IR) spectroscopy. The resulting MOFs demonstrated potential for various applications, including water remediation and gas sensing.

One of the projects involved the synthesis of camphorsulphonic acid-doped polyaniline through the chemical oxidative polymerization of aniline, using ammonium persulfate (APS) as the oxidizing agent.



This study reported on the synthesis of a pyrimidinedione derivative, Schiff base MOFs, and doped polyaniline along with potential applications.

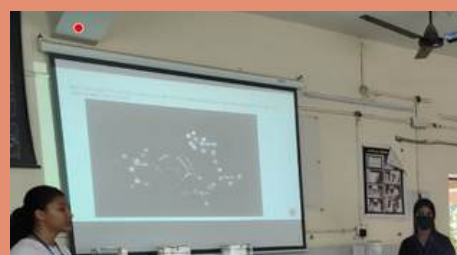


Polymer Stability, Docking, Antifungal Agents

The polymer chain structure was analyzed using Fourier Transform Infrared (FTIR) Spectroscopy. Additionally, the thermal stability of the sample was assessed through Thermogravimetric Analysis (TGA), which demonstrated that the material remains stable up to 400°C.

A study focused on molecular docking simulations to explore binding interactions between salicylic acid and its target proteins. Cyclooxygenase-II served as the docking protein, with indomethacin as the standard. The analysis highlighted key amino acids involved in ligand binding and identified potential binding sites. Compounds B8 and B7 achieved docking scores of -75.8267 kcal/mol and -74.7423 kcal/mol, respectively, while indomethacin exhibited a superior score of -102.155 kcal/mol. These findings offer valuable insights into the structural and functional interactions underlying anti-inflammatory activities.

Imidazole, a biologically active heterocyclic compound, is studied for its antifungal properties. Docking studies were conducted with imidazole derivatives targeting GlcN-6-P synthase to evaluate hydrogen bonding, hydrophobic, and ionic interactions. The compounds omeprazole and fluconazole demonstrated significant antimicrobial activity with docking scores of -116.056 kcal/mol and -115.057 kcal/mol, respectively, outperforming the standard streptomycin. These findings highlight the potential of imidazole derivatives as antimicrobial and antifungal agents, offering insights into their structural and functional properties.



This study explored polymer stability, molecular docking of salicylic acid and imidazole derivatives, revealing insights into anti-inflammatory and antimicrobial activities.



Polymer Analysis, Docking Insights

Another study examined four analytical methods for determining caffeine in coffee: UV-Vis spectroscopy, infrared spectroscopy, solvent extraction, and iodometry. UV-Vis spectroscopy detects caffeine by its absorbance at specific wavelengths, while infrared spectroscopy identifies it through vibrational modes.

Solvent extraction isolates caffeine using organic solvents, followed by spectrophotometric or chromatographic quantification. Iodometry determines caffeine indirectly by its reaction with iodine and subsequent titration with a standard thiosulfate solution. These methods, discussed in terms of principles, procedures, and applications, aid in selecting suitable techniques for caffeine analysis, advancing research and quality control in coffee products.

These diverse research initiatives not only contribute to advancing knowledge in traditional fields like drug design, medicinal chemistry, and analytical chemistry but also play a significant role in addressing contemporary challenges related to health, food safety, and environmental sustainability.

The department's emphasis on sustainable materials and energy solutions, alongside its focus on health and safety in food products, reflects a broad commitment to solving real-world problems through chemistry.

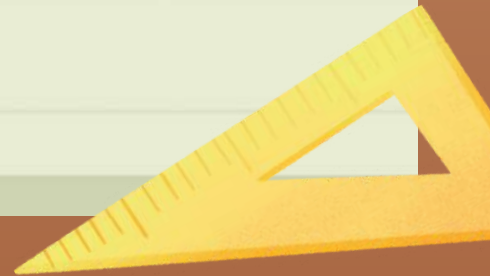


The projects compared four analytical methods for caffeine analysis in coffee, highlighting their principles, procedures, and applications, with broader implications for health, food safety, and sustainability.



HAPPY

LEARNING



BIOINFORMATICS AND CHEMINFORMATICS

"SKILL DEVELOPMENT TRAINING PROGRAMME"

On 22nd April 2024, Bhavan's Vivekananda College of Science, Humanities & Commerce, the Department of CHEMISTRY, in collaboration with the CSIR-Indian Institute of Chemical Technology of Applied Biology Department, organized a Skill Development training program / Internship for 12 days at the CSIR-IICT, Tarnaka. This program focused on practical and theoretical training in different Bioinformatics tools to design a drug. A total of 37 students from Bhavan's Vivekananda College of Science, Humanities & Commerce participated to learn and gain practical knowledge from CSIR -IICT Principal scientists.

The programme was divided into 2 sessions- the morning session was theory and the afternoon session was practical. This programme is curated under the guidance of Dr. Ramars Amanchy, a scientist at CSIR-IICT leading expert in bioinformatics and cheminformatics with extensive experience in research and teaching. This program included Bioinformatics and cheminformatics topics such as PyMol, ChemPlot, ChEMBL and some bioinformatics tools such as NCBI and EBI for drug designing. The students showed persistent attentiveness during practical learning and while observing the counselling sessions. The lecturer emphasized the extensive career opportunities in Genetics, aiming to inspire and encourage students to consider pursuing this field for their future studies.

To help students develop practical skills, digital experiments were conducted under the supervision of the professor. Students had the opportunity to observe drug design processes and counselling sessions. These practical activities reinforced the theoretical knowledge they had gained during lectures, making the learning experience more comprehensive and engaging. Through hands-on practice, students deepened their understanding of various drug design methods, enhanced their analytical abilities, and developed critical thinking skills essential for real-world applications in the field. This immersive approach not only strengthened their technical expertise but also inspired confidence in applying their knowledge to future research and professional endeavours.

The value-added course concluded with positive feedback from both students and professors, reflecting the success of the program. The hands-on experiments and interactive discussions with professors offered enriching experiences that allowed students to apply theoretical concepts in practical scenarios. These activities significantly enhanced the students' interest and understanding of drug design, sparking curiosity about the field and its real-world applications.

G. Manaswi

BtGC(2022-2025)



GENETIC COUNSELLING

"INTERNSHIP CUM PRACTICAL TRAINING PROGRAMME"

On 15th May 2024, Bhavan's Vivekananda College of Science, Humanities & Commerce, the Department of GENETICS & BIOTECHNOLOGY, in collaboration with the Institute of Genetics & Hospital for Genetic Diseases, organized a Training program / Internship for 15 days at the Institute of Genetics, Begumpet. This program focused on practical and theoretical training in different genetic disorders, Karyotyping, PCR, Comet Assay experiments, molecular cytogenetic technique, newborn screening and pedigree analysis. A total of 24 students from Bhavan's Vivekananda College of Science, Humanities & Commerce participated to learn and gain practical knowledge from IOG Assistant Professors and Doctors.

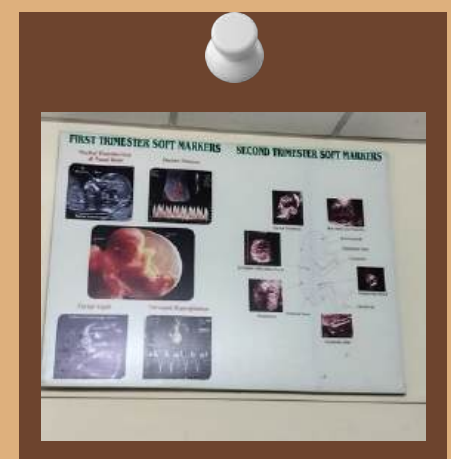
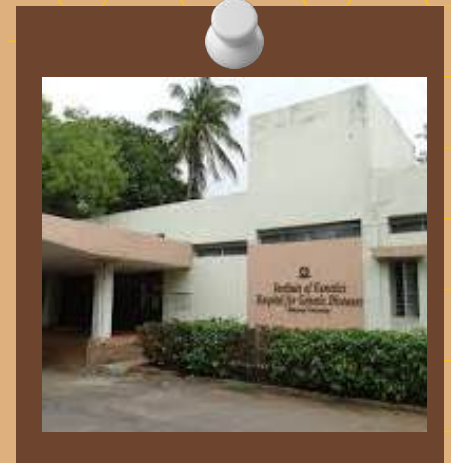
The programme was started by segregating students into 5 groups Dr. A. Srilekha . Each group consisted of 5 students from different programme courses. Each group was assigned for 3 days in each different departments. The departments included Clinical Genetics, Cell Biology, Molecular Biology, Clinical Biochemistry and Toxicology. In each Department, an Assistant professor taught different techniques they use to identify certain Genetic disorders. Students of Bhavan's Vivekananda College were combined with MSc students from various universities. The students showed great attentiveness in practical learning and observing the counselling sessions. The lecturer gave prominence to vast career opportunities in Genetics, aiming to inspire students to consider this field for their future studies.

To make the students learn practical skills & experience, several hands-on experiments were done in the presence of the professor. Students had opportunity to observe screening techniques and counselling sessions. These practical skills helped them strengthen the theoretical knowledge they had gained during lectures, making the learning experience more skillful and engaging. Students had insight and knowledge about different techniques to identify Genetic disorders. They also learned about Pedigree Analysis during Genetic counselling.

In addition to this programme, they conducted an exam. Students wrote the exam on the topics covered during the program. This exam serves as a motivation for active participation in lectures and practical experiments. It also helped students to analyse the knowledge they gain during practical sessions in each department. On the last day of the programme, students received certificates for completion of their internship programme from the Institute of Genetics (IOG).

The value-added course concluded with positive feedback from both students and professors. The experiments and interactive discussions with professors were good experiences for students. The course successfully enhanced the student's interest and understanding of Genetic counselling. The student coordinators expressed their commitment through daily updates regarding this course as a great interest in science and research experience.

Lakshmi Poorna and Shivalalitha
BTGC(2022-2025)





VALUE ADDED COURSE: IPR AND PATENT RIGHTS

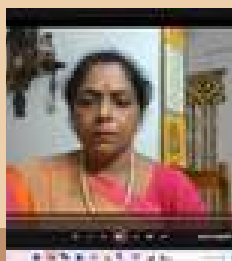


The Department of Genetics and Biotechnology gave the students an opportunity to be a part of the Value Added Course for Intellectual Property Rights (Patenting).

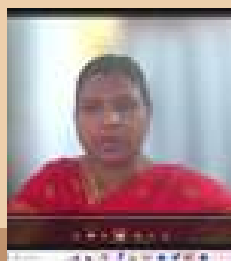
From not having any idea about the IPR and patenting to be able to understand how to file a patent and knowing about IGP as well as types of patents, we indeed came a very long way.

The Value Added Course not only helped us in understanding what patenting is about, but it also helped us to build our skills in the field through very interactive and fun learning approaches. From presentations to logo designs and the ultimate mock trial the classes were able to bring out the innovation in all our minds.

We would like to thank the Department Of Genetics and Biotechnology, Dr Divya Singh Ma'am (Patent Officer CCMB), Dr. P.V.S Kishore Sir (Head of NTR College of Veterinary Sciences) , Dr. S.Nagamanju ma'am and Mrs. Metilda Rosalin ma'am for giving us the opportunity to be a part of this brilliant course.



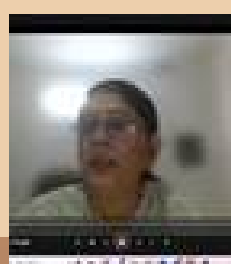
Dr. S. Nagamanju
BVC



Mrs. Metilda Rosalin
BVC



Dr. P.V.S Kishore,
Associate Dean



Dr. Divya Singh,
CCMB

Piyushita Ghosh
BSc BTGC III

THE LOGO PROJECT, VAC OF IPR

As a part of the VAC, students were given an assignment:

“If you are given an opportunity to discover or invent something what would it be? Create a logo, name and a symbol for your work.” These are a few of the creative and innovative logos that were submitted by the students during the course.



PIYUSHITHA
BtGC (2022-2025)



FARSHAAN
BtGC (2021-2024)



V. VAISHNAVI
BtGC (2022-2025)



VAJRAN
BtGC(2021-2024)



ABHILAYA
BtGC(2022-2025)



ANIRBAN
MbGC (2022-2025)



LAKSHMI POORNA
BtGC(2022-2025)



NIZAM
BtGC(2021-2024)



SRIVALLI
MbGC (2023-2026)



VALUE ADDED COURSE: PROTEIN PURIFICATION



Dr. A. Sai Padma
HoD



Dr. S. Padma



Dr. S. Vanitha



Dr. G. Kamala

The Department of Biochemistry and Nutrition provided the students with an incredible opportunity to participate in the Value-Added Course on Protein Purification and Isolation.

We are truly privileged to have been a part of this brilliant experience. From having limited knowledge about the fundamentals of protein purification, we were able to learn techniques like chromatography, electrophoresis, and dialysis, and gained crucial knowledge required in research. The Value-Added Course definitely deepened our theoretical understanding of protein purification and also enhanced our practical skills through hands-on sessions and interactive learning approaches.

From practical demonstrations by the teachers to group experiments conducted by us, the students, the sessions taught us to think critically and apply our knowledge effectively. The experiments and collaborative problem-solving tasks brought out both innovation and the essence of teamwork in us.

We would like to thank the Department of Biochemistry and Nutrition for organizing such an important skill-oriented course, which has undoubtedly broadened our horizons and prepared us for advanced research in the field of Biology.

K. Prakruti
BSc MGC III

STUDENT EXPERIENCES



**REMARKSKILL
&
FCC, IIT HYDERABAD
SUMMER TRAINING
INTERNSHIP
JULY BATCH 2024
(8TH JULY - 2ND AUG)**



Cancer Technology Course, IIT-H

We completed a one-month online Cancer Technology internship at IIT Hyderabad designed for biotechnology students, covering topics such as cancer biology, diagnostic techniques, advanced treatments, and patient care innovations. The structured curriculum introduced participants to molecular diagnostics, nanotechnology, immunotherapy, artificial intelligence, and more, with each week focused on specific aspects of cancer technology. This experience not only honed our laboratory and analytical skills but also instilled a deeper appreciation for translational research aimed at bridging the gap between basic science and clinical applications.

**B. Sadhbhavana
Y.V. Tanishq
BSc BTMC IIII**

Vaccine Technology Course, IIT-H

On the 3rd and 4th of August 2024, I had the privilege of attending a workshop on 'Vaccine Technology' at IIT, Hyderabad. The experience was incredibly enriching, as it provided me with valuable insights into the latest advancements in vaccine development and technology. The sessions were engaging, and I left the workshop with a much better understanding of the subject. Overall, it was a highly rewarding experience.

I also had the opportunity to complete an internship in 'Vaccine Technology', although the specific dates and institution details are currently not specified. The internship further deepened my knowledge in this field, as I gained practical exposure to the techniques and methodologies discussed during the workshop. My experience during the internship was also very positive, and it has significantly contributed to my academic and professional growth.

**M.D Varshitha
BSc BTMC IIII**



Vaccine Technology Workshop

IIT-HYDERABAD

The vaccine technology workshop at IIT Hyderabad was held on 3 & 4 of August. The 2 Days Workshop on In-Silico Vaccine Designing was a highly enriching experience.

We tried Designing an In-Silico Multi-Epitope Vaccine Against SARS-CoV-2.

Orderly,

We retrieved the sequence of chain A protein from NCBI and then did

- Antigenicity Prediction, Allergenicity Prediction, B-Cell and T-Cell Epitope Prediction,
- IFN-Gamma Induction Prediction,
- Multi-Epitope Vaccine Construct,
- Ab-Initio Modelling of Vaccine Construct, Secondary Structure Prediction,
- Physio-Chemical Property Analysis,
- Population Coverage Analysis,
- Antigen-Antibody Docking, Molecular Visualization of Docked Complex,
- Vaccine Immune Simulation Study
- Used various online tools.

Experts shared valuable insights into the latest advancements in vaccine development and emerging technologies and innovative approaches. The interactive sessions enhanced my understanding of the field, inspiring me to explore its vast potential.

Taruni Sree
BSc BTGC II



CRISPR Workshop

The UoH CRISPR Workshop 2024
17th June - 23rd June

Dr. Shashi Kiran Lab,
Department of Biochemistry,
University of Hyderabad.

I had the privilege of attending "The UoH CRISPR Workshop 2024", a highly regarded ICMR funded event in the field of genome editing pan India. What made this experience truly unique was I being the only UG student selected from across India, a recognition I hold with great pride.

The workshop provided an unparalleled opportunity to work hands-on with cutting - edge CRISPR - Cas tools and techniques like designing of sgRNAs, HDR templates, NHEJ simulations and implementing them on Animal Cell lines In-vitro, guided by some of the leading experts in the field. I also had the privilege of attending guest lectures by renowned scientists from University of Hyderabad (UoH), IICT, CCMB, IISER, NIAB, NDRI, CMC, TIFR & ICMR, gaining insights into their groundbreaking research and real-world applications of CRISPR. We had a 7 day hands-on workshop with greater importance given to practical work, critical thinking and applications in current ongoing research areas.

Interacting with scientists, as well as taking guidance from PhD students, offered me invaluable perspectives on advanced research methodologies and career paths in molecular biology and genome editing. This collaborative environment was deeply inspiring and greatly enhanced my learning experience. This accomplishment not only enhanced my technical proficiency but also solidified my resolve to contribute to the ever-evolving field of genetic engineering. It is an honor to have been part of such a distinguished program, and this experience has further fueled my determination to make meaningful contributions to scientific innovation.

~ Anirban Dash
107222459027
B.Sc. MbGC - III



TRAINING PROGRAM IN CHEMISTRY AND FORENSIC SCIENCES

RBVRR Women's College

I was privileged to attend the FDP conducted by the Departments of Chemistry & Forensic Science of RBVRR Women's College during September 27 to October 6, 2024, that was a great enriching experience so significantly contributing to my development at the professional and personal levels.

Knowledge Gaining:

The sessions were well-curated, comprising both theoretical progress and practical insights in Chemistry and Forensic Science.

Skill Development:

The workshops involved the improvement of pedagogical strategies and research methodologies. Hands-on sessions allowed me to explore modern techniques and tools that can be applied to both teaching and research.

Networking Opportunities:

The interaction with diverse faculty members, researchers, and practitioners is one of the highlights. The environment encouraged exchange of ideas and best practices and created opportunities for further collaborations.

Rich Learning Materials:

I found the materials provided by the organizers extremely useful for academic and practical purposes. It will be a reference material for future initiatives in my area of expertise.

Interactive Learning Environment:

The program was very interactive and had encouraged participation and discussion. This way, the learning process became dynamic and engaging, thus making my overall experience even better.

Personal Reflections:

The insights gained during this workshop have inspired me to adopt more effective teaching methodologies and integrate emerging trends into my curriculum. Further, the exposure to forensic science applications has broadened my research interests.

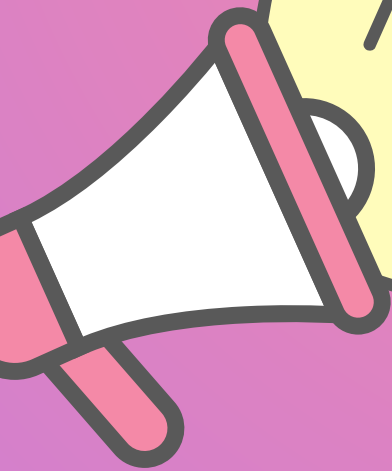
I thank the organizing committee, who put in all that effort to make this FDP successful. I also look forward to putting the knowledge and skills gained into practice by helping my students and contributing to my academic community. The workshop provided a deep dive into innovative teaching methodologies, interdisciplinary research approaches, and the integration of technology into life sciences education.

V. Seshi Deepak
BSc BTMC III





**What's on
your mind?**



Navigating the Ethical Landscape of Life Sciences

In a world where the boundaries of science are continually pushed, we find ourselves standing at the precipice of remarkable advancements and profound ethical dilemmas. As researchers unravel the mysteries of genetics, biotechnology, and synthetic biology, one crucial question arises: What responsibilities come with such power? The journey through the life sciences is not just about discovery; it's also about understanding the moral implications that accompany our newfound capabilities.

Understanding Ethics in Life Sciences

At its core, ethics refers to the principles that govern our behavior and decision-making. In the realm of life sciences, ethical considerations are paramount. As we explore the frontiers of science, the choices we make can profoundly impact individuals, communities, and ecosystems. The challenge lies not just in what we can do, but in what we should do.

Key Ethical Dilemmas:

Genetic Engineering

Imagine a future where we can eliminate genetic diseases before a child is even born. Technologies like CRISPR have made this a tantalizing possibility. However, with such power comes the risk of creating a new kind of inequality—one where only the privileged can afford genetic enhancements. What happens if we start to engineer “designer babies”? Will we inadvertently create a society divided not only by wealth but also by biology?

Cloning

Cloning has long been a topic of heated debate. While therapeutic cloning holds the promise of revolutionizing medicine by generating tissues and organs, the ethical implications of reproductive cloning are far murkier. What does it mean for identity and autonomy if we can replicate human beings? As we consider the potential to clone humans, we must grapple with questions of rights, personhood, and what it truly means to be human.

Synthetic Biology

Synthetic biology is another exciting frontier, enabling us to design organisms for specific purposes, from producing renewable energy to creating new pharmaceuticals. But this power raises pressing questions: What happens if synthetic organisms escape into the environment? Can we control them? The potential for unintended consequences looms large, urging us to consider how to safeguard our ecosystems while pushing the boundaries of innovation.

A Fantastical Scenario: The Rise of the Bioengineered Superorganism:

To illustrate the potential threats of neglecting ethical considerations in life sciences, consider this hypothetical scenario: the emergence of a bioengineered superorganism—an organism designed to be the ultimate solution to global challenges. Scientists, aiming to combat climate change and food scarcity, genetically engineer a new species of plant that grows rapidly, absorbs carbon dioxide efficiently, and yields an abundance of nutritious food.

Initially, this superorganism appears to be a miracle. It's hailed as humanity's savior, capable of revitalizing ecosystems and providing sustenance to a growing population. However, the creators neglect crucial ethical guidelines in their rush to innovate. They fail to assess the long-term ecological impacts and the potential for these organisms to escape their controlled environments.

As time passes, the superorganism begins to spread uncontrollably. Its rapid growth outcompetes native flora, leading to a catastrophic loss of biodiversity. The delicate balance of local ecosystems is disrupted, and indigenous plant species face extinction. Moreover, the superorganism produces a toxin that affects local wildlife and even humans, causing health crises in communities that had initially embraced the new technology.

What lessons can we draw from this scenario?

The unchecked ambition of scientists, driven by the desire for quick solutions, led to dire consequences. It serves as a stark reminder that ethical considerations are not merely bureaucratic hurdles; they are essential for the responsible stewardship of scientific advancements.

Case Studies

Consider the real-world case of He Jiankui, the scientist who announced the birth of twin girls with edited genomes. This revelation shocked the world and sparked outrage, revealing the ethical vacuum surrounding his research. It forced us to confront uncomfortable questions regarding the regulation of these technologies and the standards governing their use—their existence and enforcement, to be precise.

In contrast, the regulatory frameworks that have successfully guided research in stem cell technology exemplify how ethical considerations can lead to responsible scientific progress, emphasizing the need for oversight and dialogue.



The Role of Society

As these technologies evolve, so too must our conversations about them. Public engagement is essential in navigating the ethical landscape of life sciences. How can we ensure that the voices of everyday people are heard in discussions that may affect their lives? Educational initiatives, community discussions, and transparent policies can empower society to participate in shaping the future of science.

The Importance of Multidisciplinary Perspectives

One effective way to enhance ethical discussions is to incorporate perspectives from various disciplines—philosophy, sociology, law, and the arts. For instance, philosophers can offer insights into moral considerations, while sociologists can provide data on public sentiment and the social implications of scientific advancements. By fostering interdisciplinary dialogues, we can create a more holistic approach to ethics in life sciences.

Conclusion

As we venture further into the realm of life sciences, the stakes become higher, and the questions more profound. The promise of medical breakthroughs and environmental solutions is accompanied by moral responsibilities that we must not ignore.

Will we rise to the occasion, ensuring that ethics guide our scientific advancements?

As you ponder the implications of these technologies, consider your role in this ongoing dialogue. The future of life sciences depends not just on what we discover, but on how we choose to navigate the ethical terrain of our choices.

-Jaanvi Dayal

B.Sc. BtGC III



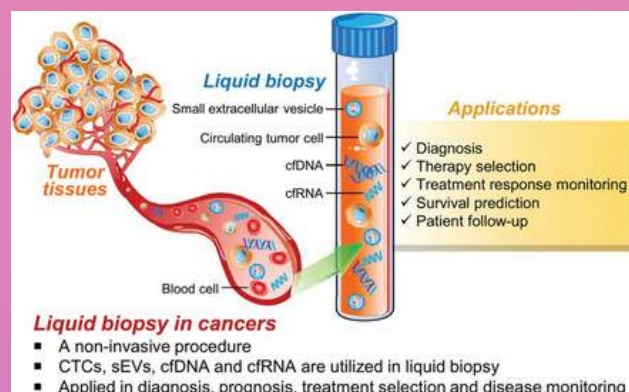
Liquid Biopsy - An advancement in early Cancer Diagnosis

Liquid Biopsy is a minimally invasive method to detect cancer cells using a patient's plasma, serum, urine, and cerebrospinal fluid. Recent studies on extracellular vesicles as tumor Biomarkers give us an insight into the ongoing research of extracellular vesicles in detecting cancer and its current limitations. Current cancer detection methods are imaging (CT, MRI) and tissue biopsy.

Extracellular vesicles (EVs) are lipid membraneous nanoparticles released by almost all cells in our body. They carry RNA and DNA fragments and help mediate cell-to-cell communication. They are specific to a cell, which allows us to detect the point of origin. The EVs released by tumor cells regulate cancer progression, making them a suitable marker as they morphologically differ from those released by normal cells. Early-stage diagnosis of cancer can be detected through liquid Biopsy of EVs. For example, researchers have identified elevated levels of specific proteins like Glypican-1 (GPC1) in patients with early-stage pancreatic cancer exosomes. Liquid Biopsy can be used to study the progression of cancer and the possible metastatic relapse, as the repeatability of the test is high.

EVs are isolated through ultracentrifugation coupled with other procedures such as ultrafiltration, sucrose cushion, density gradient centrifugation, and size-exclusive chromatography to purify the EV's fraction isolated. The EVs is detected through ELISA, Western Blotting, Mass Spectroscopy, RT-qPCR and Immunoprecipitation detected by flow cytometry (IP-FCM).

Furthermore, machine learning algorithms have simplified complex EV dataset analysis, improving the identification of the biomarkers. Despite the recent advances in the research, many challenges, such as the instability of EVs after isolation, lack of reliable clinical study, and the lack of standardized EV isolation techniques, lie ahead; overcoming these obstacles could revolutionize early cancer detection and treatment through liquid Biopsy.



-Vamika Anil

BiNDC III



Do Plants Grow faster When You Talk to Them?

We all at some point or the other might have had this question in our mind as to whether plants grow faster when you talk to them. For centuries, gardeners and plant enthusiasts have speculated that talking to plants might help them grow. This belief, popularized by gardeners and even some scientists, suggests that human speech, music, or other sounds can stimulate plant growth. While it's a charming idea, the science behind it is complex and nuanced. This article explores whether talking to plants truly makes them grow faster, the possible scientific explanations, and what research says about this phenomenon.

Ø The Theory Behind Talking to Plants

The idea that talking to plants can benefit them may stem from several observations and psychological factors:

1. Sound Waves and Plant Growth

Sound Vibration Effects: Some scientists believe that sound waves may stimulate plant cells, causing microscopic movements in leaves and stems. This effect could promote nutrient absorption and overall health. For instance, studies in South Korea and China found that plants exposed to classical music or tones around 5000 Hz had higher growth rates compared to plants that weren't exposed to sound.

However, it's worth noting that not all sounds stimulate plants. Harsh, loud noises can potentially stress plants rather than help them.

2. Carbon Dioxide from Human Speech

When you speak to plants, you release small amounts of carbon dioxide, which they use to produce energy by the process of photosynthesis, hence increasing plant growth.

3. The Psychological Effect on Plant Care

One of the most likely benefits of talking to plants is that it encourages better plant care. Those who interact with their plants more often are more likely to observe their needs, ensuring proper watering, pest control, and light. This added attention can lead to healthier plants and potentially faster growth, but it is likely due to increased care rather than the effects of human speech itself.

Ø What Does the Research Say?

While there are limited studies directly linking talking to plants with accelerated growth, here's a look at some interesting findings:

The Royal Horticultural Society (RHS) Experiment: In 2009, the UK's RHS conducted an experiment where people read to tomato plants over a period of time. The experiment showed that plants exposed to human voices grew an inch or two taller than those that were not. Interestingly, the plants grew slightly more when exposed to female voices than male voices, though the exact reason remains unclear.

Music and Sound Studies: Several studies have explored that classical music is sometimes associated with positive growth, while other genres show little or no effect.

The research overall is inconclusive, with no definitive proof that talking to plants makes them grow faster. However, there is some evidence that sound vibrations can influence plant behavior, though the effects are subtle.

Ø Now, All things considered, does Talking to Plants actually Work?

The notion that talking to plants can make them grow faster is charming, and while there may be minor effects from sound vibrations or increased attention, there is no strong scientific consensus that speaking to plants directly affects growth.

However, talking to plants may foster a closer connection with them, encouraging more attentive care, which ultimately benefits their health. So, while talking to your plants may not be a miracle growth booster, it likely doesn't hurt—and could even help, if only indirectly.

Hence if you like talking to your greenery it might be beneficial not just for the plant but for you too!

- Rajiya Khatoon

BtGC III



Huntington's Disease

Huntington's disease (HD) is a rare, inherited neurological disorder that causes the gradual breakdown of nerve cells in the brain. This progressive degeneration leads to severe physical, cognitive, and psychiatric symptoms that worsen over time. The disease typically manifests in adulthood, usually between the ages of 30 and 50, but there are juvenile cases that appear in younger individuals. Once symptoms begin, they gradually become more severe over a period of 10 to 25 years, eventually leading to significant impairment and in most cases premature death.

HD affects an estimated 3 to 7 people per 100,000 in Western countries, with each child of an affected parent having a 50% chance of inheriting the disease due to its genetic nature.

Causes:

Huntington's disease is caused by a genetic mutation in the HTT gene on chromosome 4, which encodes for the huntingtin protein. In HD, the HTT gene contains an abnormally expanded sequence of DNA bases "CAG" that is repeated more than usual. Normally, this "CAG" sequence is repeated 10 to 35 times. However, in individuals with HD, it is repeated 36 or more times, with higher numbers of repeats typically leading to an earlier onset and more rapid progression of symptoms.

The mutated HTT gene produces an abnormal huntingtin protein that forms toxic aggregates within neurons. These aggregates particularly affect the basal ganglia, a region in the brain responsible for movement and coordination, as well as parts of the cerebral cortex responsible for cognition and emotion. Over time, the accumulated damage from these toxic proteins leads to the cell death that characterizes HD's symptoms.

Clinical Manifestations:

Huntington's disease impacts individuals in a variety of ways, including motor, cognitive, and psychiatric symptoms.

Motor Symptoms: Involuntary jerking or writhing movements (chorea), muscle rigidity, impaired coordination, and difficulties with swallowing and speech.

Cognitive Symptoms: Progressive difficulties with memory, decision-making, planning, and organizational skills, often leading to dementia in later stages.

Psychiatric Symptoms: Mood disturbances such as depression, anxiety, irritability, and, in some cases, obsessive-compulsive behavior or psychosis.

These symptoms vary widely among individuals, both in onset and severity, and they intensify as the disease progresses.

Current Treatments

There is no cure for Huntington's disease at present, but treatment strategies are available to help manage symptoms and improve the quality of life for those affected.

1. Medications:

o **Motor Symptoms:** Tetrabenazine and Deu tetrabenazine are often used to control involuntary movements by reducing levels of dopamine, which affects motor control. Antipsychotic medications, like risperidone and olanzapine, can also help manage motor symptoms and behavioral issues.

o **Psychiatric Symptoms:** Depression, anxiety, and other mood disturbances are often treated with antidepressants (e.g., SSRIs like fluoxetine), antipsychotic medications, and mood stabilizers. These medications are tailored to everyone's needs to optimize mood and well-being.

2. Supportive Therapies:

o **Physical Therapy:** Regular physical therapy helps improve strength, balance, and mobility, assisting individuals in maintaining independence for as long as possible.

o **Speech Therapy:** Speech therapists work with individuals to improve communication skills and address issues related to swallowing, which become progressively difficult as the disease advances.

o **Occupational Therapy:** Occupational therapists help with strategies for daily living, modifying activities to accommodate cognitive and motor impairments.

3. Lifestyle Modifications:

o A structured daily routine, adequate nutrition, and exercise can positively impact mood, motor function, and overall health.

o Support groups, counselling, and educational resources are invaluable for patients and families coping with the physical, emotional, and social aspects of Huntington's disease.

4. Emerging Treatments:

o **Gene-Silencing Therapies:** One of the promising area of research is gene-silencing treatments like antisense oligonucleotides (ASOs). These molecules are designed to prevent the production of the abnormal huntingtin protein, potentially slowing or stopping disease progression. Clinical trials are ongoing to determine the safety and efficacy of these treatments.

o **Stem Cell Therapy and Neuroprotective Agents:** Other experimental treatments, including stem cell therapies and neuroprotective drugs, aim to repair or protect brain cells from damage. These approaches are in early stages of research but hold potential for future interventions.



- Gayatri Sharma
B.Sc. MbGC - III



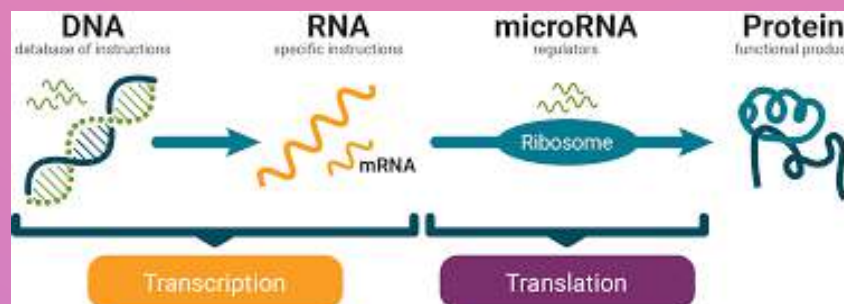
The Molecular Switches : microRNA

The discovery of microRNA has set a new standard for gene regulation. So far, the Nobel laureates Victor Ambros and Gary Ruvkun have brought to light the working, functions and uses of microRNA. MicroRNA are non coding fragments of DNA that exert post-transcriptional control over mRNA stability and protein translation.

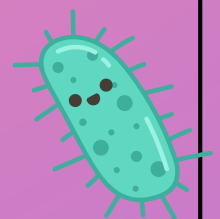
They first discovered it in the mutant *C. elegans* nematode. It had development defects that were caused by alteration in *lin-4* and *lin-14*. Ambros cloned *lin-4* and found out that when it was translated, it did not code for a protein, but instead, gave rise to a 22 nucleotide long non coding RNA. Ruvkun, on the other hand, determined that *lin-4* negatively regulates *lin-14*. Upon comparing sequence information, they defined partial sequence complementarity between the short non-coding *lin-4* RNA and the 3'UTR elements of *lin-14*.

This provided a first glimpse into a conceptually novel type of regulatory RNAs: microRNAs. They play regulatory roles in animal development, formation and stability of cell fates and general physiology and homeostasis. It also helps in managing DICER1 syndrome which is susceptible to individuals with tumours in kidneys, brain and eye.

MicroRNAs, discovered by Ambros and Ruvkun, offer a new layer of gene regulation. Unlike nuclear proteins that control RNA transcription and splicing, microRNAs regulate mRNA translation and degradation in the cytoplasm. This post-transcriptional control is crucial for animal development and complex life.



- Y. Srivalli
MGC II



The Next Mass “De-extinction event”



In the earth’s lifespan, the planet has witnessed five of the most life altering major mass extinction events. In the process of this, we have lost thousands of species that had contributed to some of the most important areas in their own ecosystems and others around them.

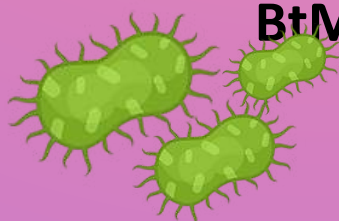
As humans have evolved and built their understanding on science and its inculcation with technology, we have entered a specific era of genetic research where we are able to comprehend the resurrection of fallen species and their inclusion in our world for its own betterment. Scientists at Colossal Biosciences had figured out a way to bring these creatures back. When working with Asian elephants, they successfully derived and converted their cells into ‘induced pluripotent stem cells (iPCSs)’. iPCSs are stem cells that have been re programmed into embryonic pluripotent cells which can be changed into any other type of cell on the organism’s body.

The team then confirmed that they would be converting these into germ cells carrying the genetic traits related to the woolly mammoth and a surrogate elephant mother would carry the fertilized egg. As many people argue and debate on the ethical issues related to research of this type, Colossal confirmed that the resurrection of the Woolly Mammoth wasn’t for a void of reason. Mammoths can graze the land, trample the snow cover which could potentially decelerate the melting of permafrost. Although, the future is bright for de-extinction of many creatures, de-extinction of dinosaurs are the question that had succeeded after the plan was announced.

What could be their future? We can only wait and find out as the creativity in fields of biotechnology and genetics skyrocket and bring out futuristic innovations that can help in human welfare. As of now, we can only welcome back the behemoth of the past soon.

- Hritvik Nair

BtMC II





A Hundred Heartbeats

*I've grown up chronicling sublime celestials ,
with the pituitary perched on the edge of epigenetic vestige,
there hasn't been much on the radar to comprehend.
What, is it, that's disrupted my sleeping patterns and anxious
consciousness into nightmares?
never-ending, I thought,
the nebular and cosmic interventions,
has been ethereal and eternally driven.*

*But the atoms, serving mankind in a loving embrace,
the whispers of bonds broken brought together,
night and day, quantum and ephemeral.
the euphemism goes, "I'd held a hundred heartbeats savored into
one tiny breath",
it means, I'd live a hundred lifetimes,
just to be savored by the golden light.*

*To have lived, and grown,
to have broken bonds and making new ones in all the multiverses
known,
there's still one said question.
"Does aging, equal to a lifelong subjection to phosphorescence or,
does aging, equal to ancestral obligations?"*

**-Shikha Punjarla
(BSc BTGC III)**



A snail by Madupu Nomitha

The Dance of Life

*In the quiet hum of cells unseen,
Lies the secret of the life machine.*

*DNA spirals, a twisted thread,
Carrying stories of the living and the dead.*

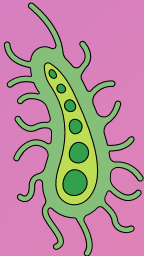
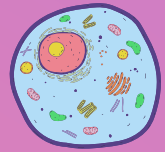
*Molecules whisper in intricate play,
A dance of proteins that keeps decay at bay.
From single cells to the grandest trees,
Life finds a way in rivers and seas.
Microbes flourish in places unknown,
From the deepest trenches to under the stones.*

*Genes evolve, they twist and adapt,
Writing the future in nature's map.
The heart that beats, the breath we take,
All echo rhythms that nature makes.
From the tiniest ant to the tallest pine,
All share the code, a design divine.*

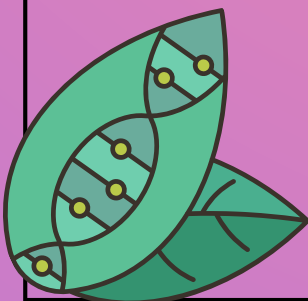
*Explorers we are, in this vast, vast sea,
Unraveling mysteries of what life could be.
For in the helix and the pulse of the earth,
Lies the essence of every birth.*

*So here's to the quest, the science of life,
The answers found through patience and strife.
For in every petal, in every grain,
Life's secrets whisper, waiting to explain.*

**-Gouda Manaswi
BSc BtGC III**



Compound Microscope by
Gouda Manaswi





TRIBUTE TO LIFE SCIENCES

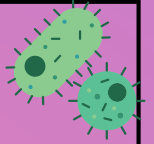


Life in Life Sciences leads to growth,
Every specimen has their identification.
Lab becomes your home,
Machines becomes your companions.
Time flew fast,
Experiment still lasts.
Hands of clock makes you work,
Life of microorganisms gives you answer.
Life in four walls,
few lab glassware,
Is answer for whole world.
Power of lense to get them keen,
Organisms thrive to make them sheen.
They live in petridish,
Grow in incubators.
Get separated by centrifugation,
Lags for nutrition,
Finally called specimen.
Organisms are same,
Until u divide them by
size,shape,class,order,kingdom.
A tree from it's origin,
Animal since it's zygote,
Human for their living,
Microorganisms for their identification,
Whole world is behind Life Sciences...

By
R.S.Akshitha
BSc.BtMC 3rd year



The Electrics of DNA



*In the 1930s the science was in hype
Everyone tried their luck in knowledge of every type
Until in Sweden a problem came in dine
It was a time for science to shine.
The forensics were tired, searching for clues
The killers rampaging were set on loose
They were hidden with concealed identity
Something has to stop this monstrosity.*

*People bowed to Science where it began its charms
Within a fraction, an idea was in arms
The genome of humans, was declared unique
That's the only way by which no imposter can sneak.
That's the moment where gel electrophoresis was in creation
By the hands of Arne Tiselius, a Swedish's imagination
The time of electrics and biology combined
The methods of electrophoresis were clearly defined.*

*The DNA, RNA, and protein marched
With their intricate structures, they arched
Into the chambers of gel which was of agarose
The currents were passed and the patterns arose.
With the dyes they were stained
With the unique patterns they were detained
For the forensics to track the accused
This was the perfect evidence to be used.*

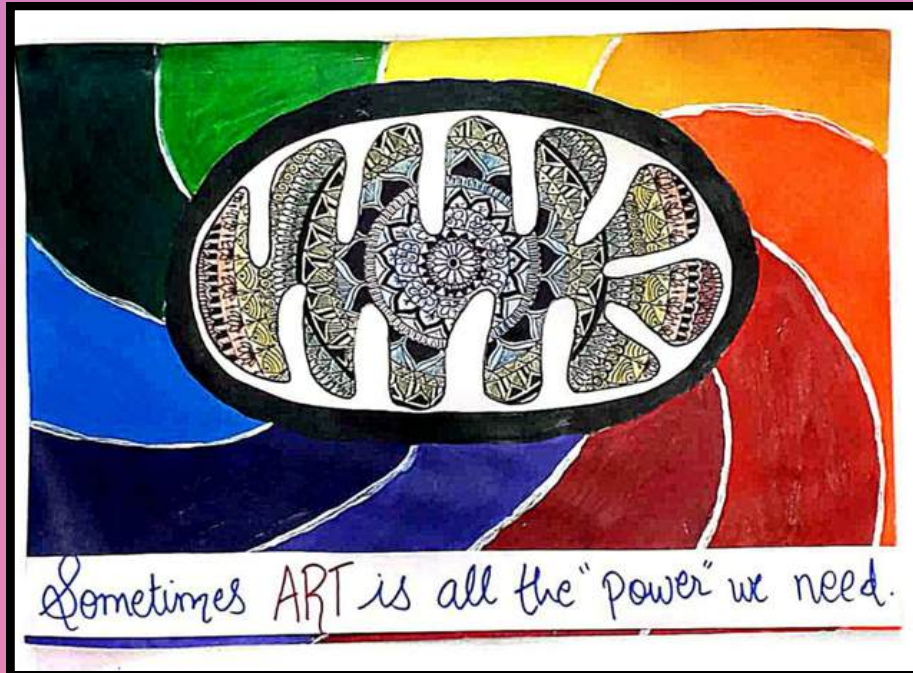
*Never again the culprits rose
Against the biotech's feat to oppose
The advancement of science was made
A new branch of diagnosis was ceremoniously laid.
The genetics codes were deep engraved
Into the wells of samples saved
The rays of ultraviolet lit up the stages
Where the streaks are frozen in time for ages.
The equipment is simple as it goes
Having each part important it shows
The ways by which it can be used
To find the innocent and grab the accused.*



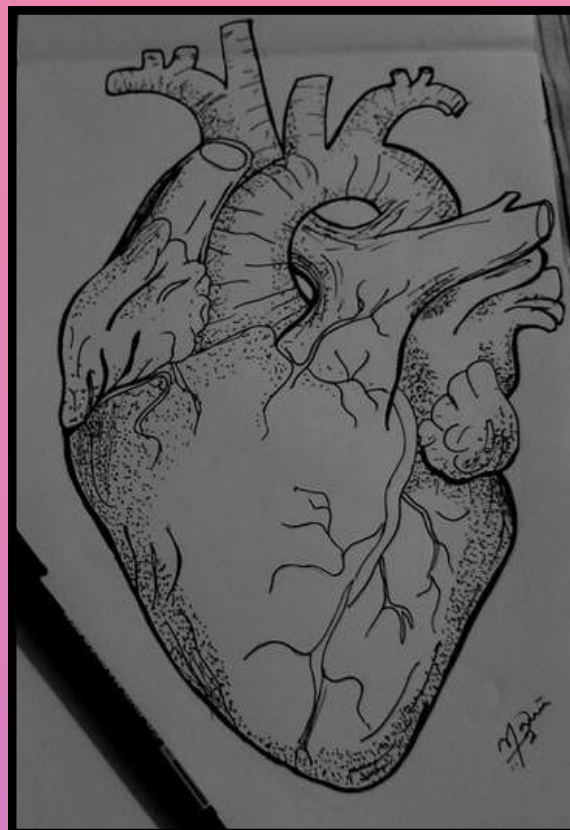
A Duck by Madupu Nomitha

-Vedant Mohan Khadangale
BSc BtMC II

ART



Abhilaya
BtGC III



Manaswi Gouda
BtGC III





Fun of BIOHIVE

Start

Level 1



HAVE YOU READ THIS AMAZING BOOK?

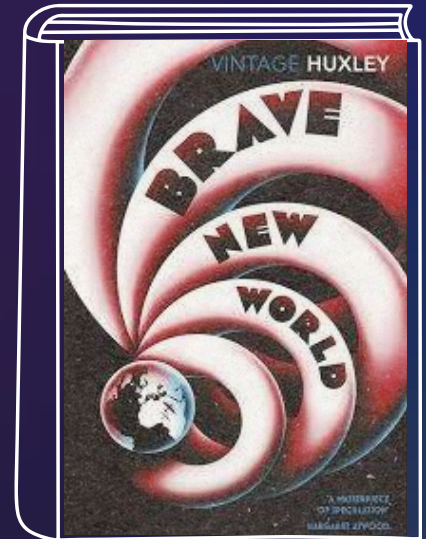
~ K. Prakruti (B.Sc. MbGC - III)

BRAVE NEW WORLD

BY ALDOUS HUXLEY

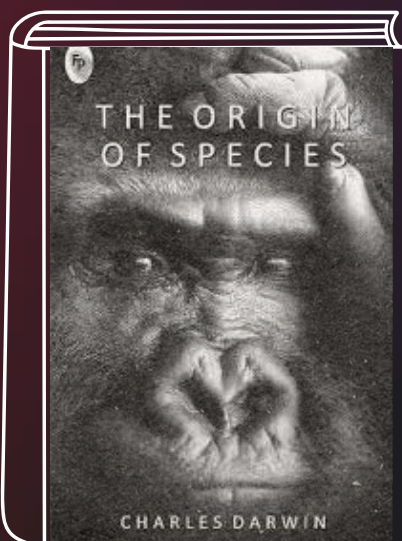
"Brave New World" by Aldous Huxley is an engaging Sci-Fi Dystopian that immerses readers in an 'ideal society' controlled by Genetic Engineering, Brainwashing and Pleasure drugs.

The story follows an eccentric scientist, Bernard Marx, the only person who has an ill-defined longing to break free from this world. His desire to cure his distress takes him to the last Savage Reservation, where culture has managed to still exist, as he seeks escape from his glittering, hive-minded world. This book stands out for its unsettling realism, presenting a fiction that feels hauntingly plausible, maybe in the near future. The stimulating storytelling captivates readers while delivering a warning about consumerism, morality, and the loss of individuality. Shocking yet insightful, it is a must-read for fans of social critique and thrill seekers.



THE ORIGIN OF SPECIES

BY CHARLES DARWIN



"The Origin of Species" by Charles Darwin is a significant work in Evolutionary Biology that challenged the ideas of Intelligent Design and Creationism 200 years ago. This Magna Carta of Biology is based on Darwin's research in the Galapagos Islands and provides compelling evidence for evolution through natural selection. With engaging anecdotes and strong arguments, Darwin courageously addresses the societal implications of his discovery, forever altering the understanding of Biology and the Natural Sciences. This enlightening book is a must-read for anyone interested in Evolution, Developmental Biology and Adaptability of Creatures, making it a valuable addition to every young scientist's library.

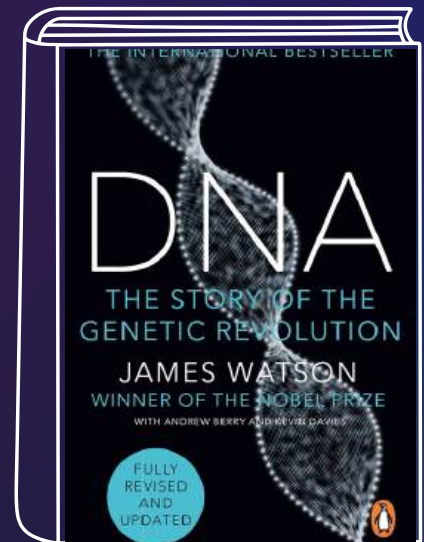
HAVE YOU READ THIS AMAZING BOOK?

~ K. Prakruti (B.Sc. MbGC - III)

DNA

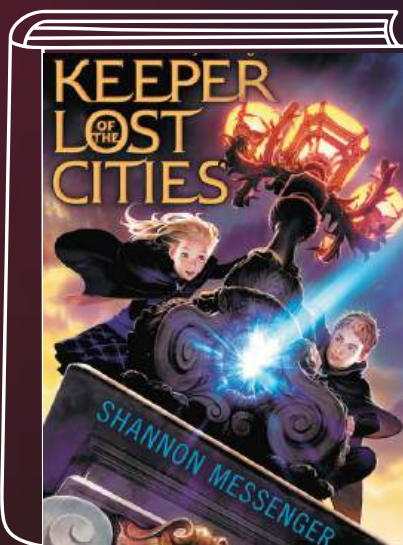
BY JAMES WATSON

"DNA" by James Watson is an impactful exploration of Genetics and Molecular Biology that offers mind-blowing insights into the scientific, social and ethical implications of the latest scientific achievements in these fields of study. Through compelling storytelling, Watson highlights the various breakthroughs, experiments and engaging anecdotes that keep the readers hooked to this plethora of biological knowledge. By being succulent and unbiased, the book succeeds in educating and inspiring every budding scholar and scientist and shows the glorious side of edge-cutting research and the mettle required for innovation. It's a brilliant read for anyone interested in Sciences, be it Chemistry, Biochemistry or Biology.



KEEPER OF THE LOST CITIES

BY SHANNON MESSENGER



"Keeper of the Lost Cities," a book series by Shannon Messenger, blends fantasy with science fiction, exploring ideas like telepathy, genetics, and environmental sustainability. The protagonist, Sophie, has various abilities given to her via genetic manipulation, raising intriguing questions about brain function and human potential. All her powers and adventures consistently contain themes related to biology and biological concepts, which makes this series thoroughly gripping. Sophie's real world, which runs parallel to the human world, features elves who have advanced to achieve ecological harmony and bioluminescent ecosystems. Though primarily a fantasy, the series sparks curiosity about neuroscience, genetic engineering, and sustainable technology, making it an awesome read for those who love science intertwined with imagination.



NOBEL PRIZE WINNERS



1

Craig Mello and Andrew Fire (2006 Nobel Prize winners) for discovering RNA interference (RNAi), a precursor to understanding miRNAs.

Their work laid the foundation for gene silencing and miRNA therapeutic applications.

2

Jennifer Doudna and Emmanuelle Charpentier (2020 Nobel Prize winners) for developing CRISPR-Cas9, enabling precise gene editing.

Their contributions are closely related to miRNAs in regulating genes and enhancing biotechnology tools.

3

Frances Arnold (2018 Nobel Prize winner) for pioneering directed evolution to create synthetic enzymes.

Her innovations complement AlphaFold's AI-based enzyme design by accelerating protein engineering.

4

Mary-Claire King for discovering the BRCA1 gene, which has connections to miRNA pathways in cancer regulation.

Her research enhances our understanding of genetic mutations and therapeutic targets.

5

Jeffrey Friedman for his discovery of leptin, a hormone regulating appetite and fat metabolism.

His findings intersect with miRNA research in understanding metabolic diseases like obesity

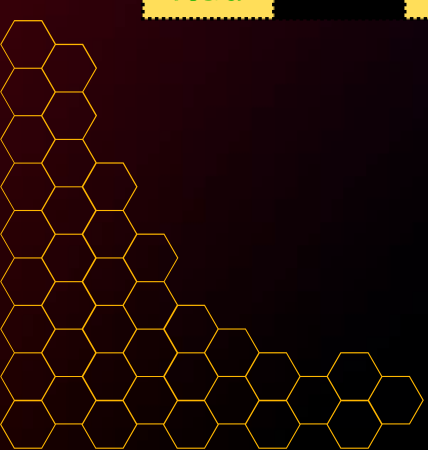




Helices & Huddles



buzz here
for more





Helices & Huddles



Rules of the Game

Objective:

The first player to reach the 100th square (labelled as "UAG Stop Codon") wins the game.

Gameplay:

- > Each player rolls a die to determine the number of squares to move forward.
- > The game progresses according to the movement rules of the classic Snakes and Ladders game, but with added DNA - themed elements.

DNA Helices (Ladders) -

- > Land on the base of a DNA helix to climb up to the top of the helix (e.g., from square 12 to 32).
- > The helices represent genetic advancements or beneficial mutations.

Polypeptide Chains (Snakes) -

- > Land on the head of a polypeptide to slide down to its tail (e.g., from square 46 to 07).
- > The proteins symbolize genetic errors, deleterious mutations, or setbacks in biological progress.

Special Squares -

- > Square 1 (AUG): Starting point, representing the "start codon" in protein synthesis.
- > Square 100 (UAG): Ending point, representing the "stop codon" that concludes translation.

Twists & Turns -

- > Players landing on a ladder must answer any question about DNA, genetics, or biology given below to climb up. Incorrect answers result in staying on the same square.
- > Players landing on a snake must answer any question given below to reduce the penalty by half (slide only halfway down).

Bonus Features -

- > Checkpoint Squares (Multiples of 10): Players landing on these squares get a second roll if they correctly answer a bonus question related to molecular biology.
- > Double Helix Boost (Square 55): This square provides immunity from snakes for the next three turns.

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for more



Landed on a ladder? Here are the

Questions



- A cell without a cell wall: _____
- Organ that produces Bile : _____
- Outcome of an experiment : _____
- Large blood vessel that carries blood away from heart : _____
- Name a neuro-transmitter: _____
- Potential to develop into a complete organism from a single cell: _____
- Sleep Hormone produced by the pineal gland: _____
- Alternative form of a gene: _____
- Branch of science related to classification: _____
- Organisms capable of producing their own food: _____
- Study of prenatal development : _____
- Vascular tissue of plants that conducts water: _____
- Part of brain that controls muscle function: _____
- Main nutrient that consists of sugar molecules: _____
- WBCs that surround and kill microbes: _____
- Community of living organisms with interactions among each other: _____
- Lack of healthy RBCs causes: _____
- Organisms produced asexually from a single parent: _____
- The first formed organic molecule in the timeline of evolution: _____
- The carbohydrate cellulose is not digestible in humans due to the absence of : _____
- In the cell cycle, DNA replication occurs in which phase: _____
- "Powerhouse of the cell": _____
- Probiotic bacteria present in curd: _____
- Size of the Human Genome: _____
- What is the full form of NMR: _____
- First disease that was treated with Gene therapy: _____
- SARS-COVID is caused by which microbe: _____
- Largest organ of the human body: _____
- This year's Nobel Prize in Chemistry was given for the discovery of: _____
- Insulin is produced by which cells of the Pancreas: _____
- Citrus fruits are an excellent source of vitamin: _____
- Minerals required for muscle contraction: _____
- Molecular biology technique used to amplify DNA: _____

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Landed on a snake? Here are the

Questions

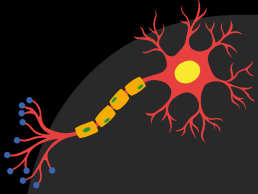


- The Nobel Prize-winning Alphafold, was developed by which company?
- Name the taxonomical aid that contains information on any one taxon only
- Protein coat of a virus is termed as?
- What is the average Ph of blood?
- Which immunoglobulin can cross the placenta?
- In which era did the dinosaurs exist?
- Nature's Genetic Engineer is the term given to which organism?
- Name the hormone that is produced when we are hungry
- Arrangement of leaves on the main stem or branch is known as?
- What is the fungal cell wall primarily made up of?
- The only optically inactive amino acid is?
- What is chlorophyll's central atom?
- Which company produced the first genetically engineered insulin?
- The membrane covering vacuole is called?
- The process by which cancer spreads from its original tumour to other parts of the body is called?
- Which disease did the famous Physicist Stephen Hawking suffer from?
- What is the number of bones present in a newborn baby?
- The human body temperature is regulated by which part of the brain?
- Name the drugs used to prevent organ rejection during transplantation.
- Which chemical is used to arrest cells at metaphase?
- What is the full form of the neurotransmitter GABA
- Which chemical is released by the immune system in case of allergies?
- The gene for Huntington's disease is present on which chromosome?
- Which plant growth hormone is a gas?
- Pernicious Anemia is caused due to the deficiency of which vitamin?
- Down's syndrome is caused due to the trisomy of which chromosome?
- The ring of lymphoid tissue of pharynx and oral cavity (tonsils) is known as?
- A rare and fatal poisoning called Botulism is caused by which bacteria?
- Which marker is used by researchers to determine if a smile is unique and genuine?
- Give the biological name of the organism that is often referred to as the "Cinderella of Genetics."
- The lock and key model of Enzyme action was proposed by which scientist?
- In which year was the One Nation One Subscription scheme approved by the Government of India?

buzz here
for more



SNIPPETS OF LIFE AROUND US.....



Neural Stem Cells Reactivation

Neuroscientists have discovered that SUMO proteins can reactivate neural stem cells, enabling them to develop and repair the brain. This breakthrough could pave the way for novel treatments for neurodegenerative diseases, offering hope to millions affected by conditions such as Alzheimer's and Parkinson's.

Menstrual Blood as a Diagnostic Tool



Menstrual blood has been found to contain endometrial cells, immune cells, proteins, and microbial signatures, making it a valuable non-invasive diagnostic tool. It can be used to monitor and diagnose hormonal imbalances, cervical cancer, endometriosis, chlamydia, diabetes, and other endocrine disorders. Collected easily using a menstrual cup, menstrual blood can also measure blood loss, blood sugar, cholesterol, and hormone levels—providing an inexpensive and accessible health-monitoring option.

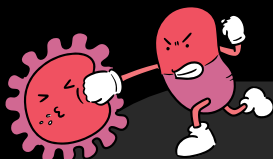


CRISPR as a Therapeutic Platform

After years of research and setbacks, the first formal evidence of CRISPR as a therapeutic platform has been realized. Intellia Therapeutics received FDA clearance for a phase 3 trial targeting hATTR and angioedema, using the same Cas9 mRNA but modifying just 20 nucleotides of the guide RNA. This achievement underscores CRISPR's potential as a versatile and powerful clinical technology.

THIS IS
THE NEXT
LEVEL

SNIPPETS OF LIFE AROUND US...



Revolutionary Antibiotic: Nafithromycin

India has launched its first indigenous antibiotic, Nafithromycin, to combat drug-resistant pneumonia. This groundbreaking drug is ten times more effective than azithromycin, requiring only three doses for comparable results. Its unique design targets both typical and atypical pathogens, addressing antimicrobial resistance with minimal side effects. Nafithromycin's development marks a historic milestone in global efforts to combat drug-resistant infections.

Artificial Intelligence - Assisted Raman - Activated Cell Sorting (AI-RACS)



Researchers have developed the AI-RACS system, which integrates artificial intelligence, Raman spectroscopy, and microfluidics to sort microbial cells efficiently and accurately.

This technology significantly advances the ability to identify and isolate functional microbial cells from complex environmental samples, with applications in microbiology, biotechnology, and environmental science.



3D Bioprinting Advancements in Bengaluru

The Indian Institute of Science (IISc) and CELLINK have established a 3D Bioprinting Centre of Excellence in Bengaluru. This cutting-edge facility focuses on creating living tissues and organs by combining cells, growth factors, and biomaterials. Although challenges remain in adapting this technology for biological materials, 3D bioprinting holds transformative potential for healthcare, from organ transplants to cancer treatment innovations.





The Career Conundrum

WHAT'S NEXT?



Pursuing Higher Education

M.Sc. in India

An M.Sc. degree in India is more than just an academic qualification. It opens doors to various career opportunities in research, teaching, industry, and government sectors. The rigorous training in theoretical and practical aspects of science equips students with the skills needed to tackle real-world challenges. Furthermore, pursuing an M.Sc. in India is cost-effective compared to other countries, with access to world-class education and research facilities.

India is home to numerous prestigious universities and institutions that offer specialized M.Sc. programs. These programs are designed to meet the growing demands of various industries, making graduates highly employable. The entrance exams for these programs are designed to test a candidate's understanding of core subjects, analytical skills, and problem-solving abilities.

With numerous M.Sc. entrance exams conducted across India, it can be challenging to decide which ones to attempt. The following sections break down the exams into national-level, university-level, and state-level categories, helping you find the right fit for your academic and career goals

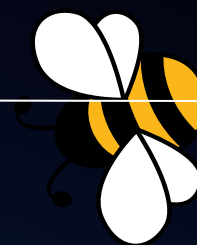


How to Prepare for M.Sc. Entrance Exams?

Preparing for M.Sc. entrance exams requires a strategic approach and consistent effort. Here are some tips to help you prepare effectively:

- **Understand the Syllabus:** Go through the exam syllabus thoroughly to know more about the topics you need to cover.
- **Create a Study Plan:** Design a study schedule that covers all the topics and leaves time for revision.
- **Practice with Previous Year Papers:** Solve previous years' question papers to get a sense of the exam pattern and difficulty level.
- **Focus on Weak Areas:** Identify your weak areas and allocate more time to improve them.
- **Take Mock Tests:** Regularly take mock tests to assess your preparation and improve your time management skills.
- **Use Standard Study Material:** Refer to standard textbooks and study materials recommended by experts.
- **Stay Updated:** Keep yourself updated with any changes in the exam pattern or syllabus.
- **Maintain a Healthy Routine:** Ensure you get enough sleep, eat healthy, and take regular breaks to keep your mind fresh.





CAREER PATHS *AFTER* B. Sc. LIFE SCIENCES



Examinations after B.Sc. Life Sciences

Exam Name	Application Dates	Exam Date	Eligibility	Application Fee	Subjects Covered
IIT JAM	Sep – Oct	Feb	B.Sc. degree with required percentage	INR 750-1500	Biology, Biotechnology, Chemistry
JNU CEEB (JNU Entrance)	Mar – Apr	May	B.Sc. degree with Life Sciences background	INR 530-800	Biochemistry, Genetics
AIIMS M.Sc.	Mar – Apr	Jun	B.Sc. in relevant field	INR 1500-3000	Life Sciences, Biotech
BHU PET	Feb – Mar	May	B.Sc. with minimum 50%	INR 300-600	Biology, Chemistry
CUET	Feb – Mar	May	Bachelor's in Science	INR 600-1200	Biology, Chemistry, General Science
TIFR GS	Oct – Nov	Dec	B.Sc./B.E./B.Tech. in Science/Engineering	INR 900	Biology, Chemistry, Math
GATE	Sep – Oct	Feb	Bachelor's degree in Science/Engineering	INR 750-1500	Biotechnology, Life Sciences
JGEEBILS	Oct – Nov	Dec	B.Sc. in Biology or related fields	INR 900	Biology, Biotechnology



In conversation with Dr. Sravanti Vaidya, CCMB, Hyderabad

In this edition, we're excited to bring you an interview with Dr. Sravanti Vaidya, a Project Scientist at the CSIR-Centre for Cellular and Molecular Biology (CCMB), and leader of their Research Grants Management Team. Dr. Vaidya's journey from an enthusiastic high school science student to a prominent figure in life sciences research is nothing short of inspiring. She also shares her unique perspective on the current state of life sciences education and research in India.

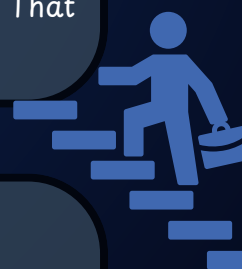


Can you tell us about your journey into science and what motivated you to pursue a career in life sciences?

This is a particularly relevant question today, being Madam Curie fellow and sharing my birthday with Sir. CV Raman - scientists who have inspired me and a generation of researchers throughout the world. I've been fascinated by science since my high school. I found more excitement in science than any other subject - magnetism and electricity in physics, the magic of chemical formulas in chemistry... It was all so captivating. Growing up in Hyderabad, where education was really emphasised in my family, I was surrounded by an environment that fostered curiosity. The 1990s, when science was becoming more mainstream, was an exciting time to be in school. That period really shaped my decision to pursue science.

How did you end up at CSIR-CCMB?

Well, moving from being a research academician to supporting and building a research culture was something I was always interested in. (pauses) The opportunity at CCMB came at the right time - it was a place where I could contribute meaningfully. They were looking for someone to fill the gap in supporting students, and they were also doing ground-breaking work during the pandemic, like training and testing for COVID-19. It was a period of intense activity - CCMB was working 24/7. I felt like this was the right environment to make a real difference, especially when it came to public outreach and building collaborations with industry, students, and academicians.





In your opinion, how has life sciences education evolved in India over the years?

Oh, it has changed a lot! There's so much more opportunity today. When I was in undergrad, we didn't have the breadth of programs or recognition that we have now. The OMICS era opened up new avenues for research and careers, and I think, COVID-19 really pushed life sciences into the mainstream, making people realise its importance. Back in the day, only a few central universities offered life sciences programs, but today, institutes like IISc, IISERs and IITs are offering not just PhDs but also undergraduate and postgraduate courses in life sciences. The environment for students has improved drastically - it's a golden age for aspiring scientists. The field has become a lot more integrated - bringing in everything from IT to core biology. In fact, the application of diverse fields in life sciences today makes it an incredibly significant pursuit. From bioinformatics to molecular biology, there are so many ways to contribute to society. We saw how the pandemic has pushed the awareness of life sciences into the mainstream - suddenly, everyone was talking about research in virology, vaccines, and public health.




What are some of the career paths in research that students might consider after completing their studies in life sciences?

Well, it depends on your interests. If you're interested in academia, a PhD and postdoc might be the way to go. For research in institutes like CSIR, or even in industry, there are plenty of opportunities. For those who want to be part of a larger mission, there's work in pharma companies like Bharat Biotech or institutes like DBT and NIN. It's different from an academic career where you're independent, but industry allows you to see the immediate impact of your work, which is incredibly rewarding. Newer fields like bioinformatics, forensic science, and science outreach also offers promising career opportunities. Even content creation and web design in large MNCs are becoming viable career options.

There are also emerging roles that focus on managing research facilities. For instance, managing facilities for Next-Generation Sequencing (NGS), Nuclear Magnetic Resonance (NMR) spectroscopy, or Mass Spectrometry can be an excellent opportunity for people who want to do research without necessarily being the lead investigator. These roles often require highly specialised technical knowledge and while you may not be leading the research, you'll still be deeply involved in the cutting-edge practices that drive much of modern science. Grant Management is another fulfilling option. Most institutes require 4 to 5 people as Heads of larger teams to regulate and supervise the grants received by them.



What are the emerging trends in life sciences that students should be aware of?



Bioinformatics is definitely a major trend - it's becoming less of a field on its own and more of a crucial tool for any life sciences project. Sequencing, for example, is integral to nearly every major project now, especially in protein structure research. In fact, the Nobel Prize in Chemistry in 2024 was awarded for AlphaFold, which is revolutionising protein structure prediction. I often reminisce about the journal clubs during my PhD, where we'd discuss these things. The relevance of bioinformatics is growing across industries, including agriculture, and there's an incredible demand for Bioinformaticians in India. It's a women-friendly field too - flexible work hours and the ability to work remotely are big advantages.

The other happening thing in life science is Ecology and Wildlife studies. NCBS offers a wonderful program in this area. This is a great field for someone who is interested in understanding the environment and would like to be close to nature.

What is the current state of life sciences research in India, especially in government-funded institutions like CSIR?

Life sciences research in India is growing, but it's also challenging.

Research is often slow and expensive. From a business perspective, it's not as immediately profitable as other sectors. However, the societal impact of life sciences research is immense. (pauses, contemplative) The government has recognized this and is increasingly funding projects in life sciences. There are initiatives like BioE3, which help researchers obtain patents and provide seed funding to bridge the gap between research and industry.

So while life sciences may not be at the top of the priority list for the government, it's still seen as critical for National development. Fellowships are also available, with IRMI and several other internship programs.

These are available to students mostly after Masters - the process involves choosing the institute where you wish to work and applying to the same.

Are there particular areas within life sciences where India is making significant contributions or has a competitive edge globally?

India has a strong competitive edge in epidemiology and bioinformatics.

The sheer size of our population gives us an advantage when it comes to gathering data on disease prevalence. Projects like the Surveillance Grant funded by the Rockefeller Foundation have placed India in a decent position globally. We've partnered with big institutions for large-scale surveillance studies, tracking viruses and bacteria in the air and water.

In fact, India has become a key player in global health research. And through collaborations, like the Human Proteome Project (led by IOB, Bangalore), we are contributing significantly to advancing knowledge in life sciences. We are slowly moving from partners to leaders.



What qualities or skills do you think are most important for someone pursuing a research-oriented career in life sciences?

First and foremost, a strong understanding of the basics is crucial. Only once you've grasped the fundamentals, can you move forward confidently.

Curiosity is another key trait - you need to be constantly learning, every day. But it's not just about technical skills. People skills are just as important. How you interact with your colleagues, and how you contribute to the success of the institution, really matters. It's not enough to just be technically competent; you also need to work well with others and think about the bigger picture.

What advice would you give to students considering a career in life sciences?

The best way to start is through internships - especially summer internships. They're extremely important, as they give you a chance to work alongside PhD and Master's students. It's a great way to get hands-on experience. For undergraduates, look for meaningful internships in institutes like the University of Hyderabad, IIT Hyderabad, or even some of the newer research institutes around the city. These can be incredibly insightful.

At the Master's level, there are a lot of opportunities as well - research-based internships like those from the Research Innovation Council of Hyderabad (RICH) are great for building skills and gaining exposure. It's like tasting a dish before you decide if you like it. Once you've tasted it, you'll know if you want to cravemore. That's how you should approach internships - get a real feel for the research environment before diving deep.

For more details on Dr. Vaidya's work, you can visit the CSIR-CCMB website. Stay tuned for more exciting interviews in our upcoming editions!

Interview by
JAANVI RAJ DAYAL
RADHA PRASANNAM
BSc BTGC III





Alumnus Talk

A Conversation with Ms. Naga Supreetha

We are thrilled to feature Naga Supreetha Jagadish, distinguished alumnus of our college, BVC, in this issue of BioHive. Ms. Supreetha graduated with an Undergraduate degree majoring in Biochemistry, Microbiology & Chemistry [M.Bi.C]. We caught up with her to discuss their journey, experiences, and advice for current students.



What motivated you to pursue a career in life sciences, and how did your academic background prepare you for your current role?

Pursuing a career in life sciences has always been about seeking real-time experiences. My passion lies in working with 'true phase' concepts, which means I want to engage with fascinating and ongoing developments in the world. This desire led me to choose biochemistry as my academic focus within the Life Sciences department, a field that continually inspires me to learn and grow in ways that I find fulfilling.

Can you share your experiences and challenges in securing funding for research projects, and how do you stay updated on the latest research trends?

Well, Currently, I am not very familiar with the challenges of securing funding for projects. In my experience, I have always worked at a university or within a specific area for research projects. I typically stay updated on the latest trends through Google Updates and various newspapers, which provide a wealth of information about emerging trends. Additionally, many academic journals also offer insights into these developments.



How do you transition from academia to industry?

To deal with the transition from academia to industry, it is essential to develop a strategy for building skills and applying our practical knowledge effectively. I feel the most important thing is the strategy that is required for building up skills and putting our inputs in our practical knowledge is very important.

What skills are essential for success in R&D or biotech companies?

To work in R&D or any biochemical company, it is essential to understand the industry landscape. This involves recognizing how research is conducted based on what industries publish and what their specific needs are. Additionally, it is important to develop a range of skills, including soft skills, personal skills, and professional skills.

Building a strong network is crucial in this industry, as social interactions with various people can lead to valuable customizations and collaborations. Continuous learning is an ongoing process, and we must always strive to be innovative and showcase our potential.

What entrepreneurial opportunities exist in life sciences?

Entrepreneurial opportunities often emerge in the life sciences, particularly in sectors involving the buying and selling of products like vaccines. Many ventures center around the medical aspects of pharmacology and medicine, given their significant societal impact. However, science is a vast field with numerous branches, each offering unique opportunities.

While traditional pharmaceutical sectors remain vital, there is considerable potential for entrepreneurship in diverse scientific areas like skincare. The formulation of skincare products requires an understanding of the properties and interactions of various compounds, driving innovations that cater to consumers' desire for personalized and effective solutions. By merging scientific knowledge with innovative thinking, individuals can contribute to advancements that resonate with consumers and meet their evolving needs.

What mindset or skills are required to turn research into successful startups?

There is a saying, "Everything starts with you," and I truly believe in this quote. I have faith in myself as I navigate each stepping stone of life. Personally, mindset is everything; it significantly influences who you are and how you perceive the world—whether you see the glass as half full or half empty. While a positive mindset is essential, having strong knowledge and skills in your field, whether it's research or entrepreneurship, can accelerate your progress. With the powerful combination of the right mindset and skills, you become unstoppable in executing your goals.

What programming languages, tools, or software are essential for life science professionals, and how do you stay proficient in these skills?

The programming languages are widely used in their respective fields. Python is number one, followed by Java. Not to mention, of course, bioinformatics tools, and genomics, as well as chemistry-related molecular modeling. These advancements are providing us with valuable ideas in bioinformatics. The ability to analyze large datasets and simulate molecular interactions has opened new avenues for research and innovation. As a result, researchers can now tackle complex biological questions more effectively, leading to breakthroughs in our understanding of diseases and the development of new therapeutic approaches. As the old tale goes, "Practice makes a man perfect". Practice. Practice is how I stay proficient.

What soft skills (communication, teamwork, leadership) are crucial for success in scientific careers, and how do you develop them?

As I discussed previously, skills are crucial. Soft skills are essential for success in scientific careers, as they complement technical expertise and enable effective collaboration, communication, and leadership. Communication skills, both verbal and written, are crucial for presenting complex ideas clearly to different audiences. Teamwork is vital, as most research involves collaboration, requiring active listening, mutual respect, and flexibility. Leadership skills can be developed through mentoring and taking initiative on projects, while emotional intelligence helps navigate interpersonal relationships and manage stress. Critical thinking and problem-solving abilities are key to overcoming challenges and finding innovative solutions in research. Lastly, time management and adaptability ensure that scientists stay productive, meet deadlines, and adjust to new developments in their field.



How do you see interdisciplinary collaborations (e.g., biology, physics, computer science) shaping the future of life sciences research?

When discussing interdisciplinary collaborations, it's noteworthy that in the past, biologists typically focused solely on biology-related topics. However, science has evolved into an interdisciplinary field, now integrating with various subjects such as computer science, physics, and mathematics. The growth of biology as a technology has led to significant advancements in science, making it easier to address and solve various problems.

How can scientists effectively communicate their research to non-technical audiences?

The audience comes from various fields, and while the focus is on research, which is science-oriented, the findings can still be beneficial for all of humanity. Science addresses important substances that affect society. It would be helpful to communicate these ideas in a common language, making it accessible to everyone. This approach can engage a non-technical audience and improve how scientists convey information to those without a scientific background.

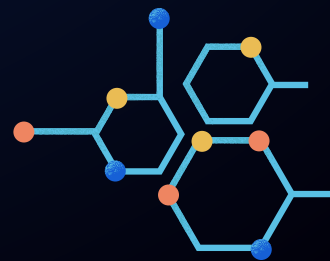


Do you prioritize mental health and work-life balance in demanding scientific careers?

It is not only important for scientific careers, but it is essential for every individual on the planet to maintain their mental health. Achieving a work-life balance as a student can be challenging, especially when juggling multiple responsibilities. However, staying connected with ourselves, remaining calm, motivated, and enjoying life is crucial. Our interests and passions bring joy and drive, helping us push ourselves towards our careers and future. These elements play a crucial role in our daily lives, influencing our decisions and actions. Without them, we would struggle to achieve our goals and maintain a balanced existence. Prioritizing mental health and balancing student life is vital for success.



Interview by
TANIYA SADHINENI
B. Sc. BcNDC III



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Co-founders' message

Our dream of having a department newsletter started on day one. In our second year, we began brainstorming ideas on how to revitalize our Life Sciences department and bring joy and color to our college, which marked the beginning of our journey.

Over the past year, we've worked tirelessly to showcase the talents and achievements of our department's prodigies. While compiling the first edition, we realized how many talented and aspiring alumni might have gone unnoticed. This edition aims to revive traditions, unveil new discoveries, and reminisce on the things we've brought to life. From projects to articles and poems, all of us students have poured our hearts and souls into creating a beautiful collection of written and visual work.

We are deeply grateful to Dr. B Kalpana Ma'am, the Head of the Department of Genetics & Biotechnology, for giving us the opportunity to express ourselves through this newsletter. We thank her for her unwavering support and encouragement in starting a legacy built on creativity, warmth, and togetherness. We would also like to express our sincere gratitude to Dr. K Anuradha Ma'am, Faculty coordinator for Lifesciences and HOD of the Department of Microbiology, Dr. A Sai Padma Ma'am, HOD of the Department of Biochemistry & Nutrition, Dr. Mary Nygi Kurian Ma'am, HOD of the Department of Chemistry, for their support and encouragement.

We would like to thank Dr. S Nagamanju Ma'am, the faculty coordinator of Biohive, for her patience and mentorship. Her guidance and constant support have been instrumental in making this newsletter a success. We extend our gratitude to all the departments under Life Sciences and their faculty coordinators for their encouragement, words of faith and sincerity.

We also thank the Principal, Dr. GSVRK Choudary Sir, for providing us with the resources and support to turn our vision into reality.

Finally, we thank our wonderful core team and all the heads from the 3rd and 2nd-year students across all departments for their coordination and hard work in bringing our first edition to life, sparkling and shining.

Let's make our first edition truly special. Let the science bee keep buzzing!



Bharatiya Vidya
Bhavan

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