KOSHIKA

Unit of Life, Technology & Communication

Volume 4, Jan, 2025

"The cell is the battlefield where life's forces meet and determine our existence."
— Albert Claude

"Koshika" translating to cell, is the fundamental living unit in biological sciences comprising various organelles.

This newsletter showcases the collective potential of each and every member associated with the department. "Koshika" was named unanimously, where each organelle has a unique, indispensable function. An orchestrated co-ordination amongst the organelles sustains and propagates a cell to express as LIFE.

The students, faculty, lab-staff having a unique role are unified in efforts and pursuits to bring vibrancy and success to Biotechnology Department. Our "nucleus" carrying the genetic code, is the quintessential motivation and opportunity to facilitate each student to find a place to grow and branch out. The faculty and lab staff are the powerhouses - the "mitochondria", driving the learning process for each student. The students represent our outgoing "vesicles"

Department of Biotechnology

Jaypee Institute of Information Technology

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY
jiit
विद्या तत्व ज्योतिसम:

KOSHIKA MAP

HOD'S NOTE

As we embark on the academic session of 2025, I take immense pride in reflecting on the journey of the Department of Biotechnology at Jaypee Institute of Information Technology (JIIT), Noida. Our department continues to foster a nurturing environment that encourages students to realize their potential and prepares them to excel academically, professionally, and socially.

The publication of Koshika, our departmental newsletter, serves as a dynamic platform to showcase the creativity, dedication, and accomplishments of our students and faculty. It is truly inspiring to witness the seamless integration of academic endeavors with artistic and intellectual expressions such as articles, poems, and sketches, all of which reflect the vibrancy and spirit of our department. This year, the newsletter embraces the theme Threads of Life, emphasizing how biotechnology unravels the intricate tapestry of existence. From the molecular interactions within cells to the expansive networks of ecosystems, biotechnology acts as the connecting thread between fundamental research and its real-world applications. Fields like genetic engineering, synthetic biology, and bioinformatics illustrate how we weave knowledge to address pressing challenges in health, agriculture, and the environment. This theme resonates deeply with the essence of life's interconnectedness and reflects our department's unwavering commitment to advancing innovations that sustain and enhance these vital threads.
We also celebrate the strong bond we share with our alumni, who continue to inspire us with their achievements. Their contributions to this edition—ranging from success stories to creative insights—highlight the invaluable role they play in shaping the department's legacy and future.
As we look forward to 2025, I extend my heartfelt congratulations to the editorial team for their dedication and vision in bringing this edition of Koshika to life. My sincere gratitude goes out to our students, faculty, and alumni for their collaborative efforts and unwavering enthusiasm. May this session be filled with new opportunities, challenges, and remarkable achievements for everyone.

Prof. Pammi Gauba

Head of the Department, Biotechnology

Dean (Academics & Research I)

Dean (International Affairs and Sponsored Projects)

EDITORIAL REFLECTION

Hello, Readers

We are delighted to announce the fourth edition of Koshika, the newsletter published by JIIT Noida's Biotechnology Department. Take a closer look at the interesting advancements in our department and ongoing research that is still influencing our future in this edition. We extend our heartfelt gratitude to our readers for their unwavering enthusiasm and engagement with the third edition, published in April 2024.

Steve Jobs once said, "*The people who are crazy enough to think they can change the world are the ones who do.*" He inspires us because we strive to be excellent at what we are doing. With this approach, we push envelopes in our academics and science research.

We take this opportunity to express our deepest condolences on the passing of Neeraj Wadhwa Ma'am. Her contributions to the department, her commitment to our growth, and her warm presence will never be forgotten. Our thoughts and prayers are with her family, friends, and all who were touched by her kindness and dedication.

This edition would not have been possible without the continuous support of our Pro-Chancellor, Vice-Chancellor, and Head of Department. We are also thankful for the precious contributions of our colleagues whose ideas and insights continue to enrich Koshika.

We eagerly look forward to your continued participation and feedback. Together, we can drive innovation, celebrate achievements, and inspire the next generation of biotechnologists, scientists, and leaders.

Warm regards,

The Editorial Team

LEARNING BLUEPRINTS

VISION

To be a centre of excellence in Biotechnology for providing quality education and carrying out cutting edge research to produce professionals, innovators, researchers, and entrepreneurs.

MISSION

MISSION 1: To offer contemporary, futuristic and flexible curricula of Biotechnology for teaching and training.

MISSION 2: To carry out globally acceptable cutting edge research through sponsored projects and to provide state of art laboratories for experimental work.

MISSION 3: To develop bio safe, socially ethically and environmentally acceptable solutions to address health, environmental, industrial, entrepreneurial and societal concerns.

PROGRAMME EDUCATIONAL OBJECTIVES

B.TECH. BIOTECHNOLOGY

PEO1: To provide fundamental and practical knowledge in the field of Biotechnology for pursuing research career in industry and academia.

PEO2: To impart analytical and research skills and nurture entrepreneurial endeavours.

PEO3: To develop biotechnologists with professional ethics to address global and societal issues for sustainable development.

M.TECH. BIOTECHNOLOGY

PEO1: To impart advanced theoretical and practical knowledge in Biotechnology and allied fields.

PEO2: To provide domain knowledge and expertise for successful career in academics, research, and industry.

PEO3: To develop ethically and socially responsible professionals with leadership and entrepreneurship skills.

PROGRAMME EDUCATIONAL OBJECTIVES

M.SC. ENVIRONMENTAL BIOTECHNOLOGY

PEO1: To impart advanced theoretical and practical knowledge in Environmental Biotechnology and allied fields.

PEO2: To enhance knowledge and expertise for a successful career in academics, research and industry.

PEO3: To develop professionals with social, environmental and ethical awareness.

M.SC. MICROBIOLOGY

PEO1: To impart advanced theoretical and practical knowledge in Microbiology and allied fields of Biotechnology.

PEO2: To enhance knowledge and expertise for a successful career in academics, research and industry.

PEO3: To develop professionals with social, environmental and ethical awareness.

FOREVER IN OUR HEARTS

A TRIBUTE TO OUR

"NEERAJ MAM "

Peace be upon her soul, as she journeys into the realm of everlasting peace

Gallery of Memories...

"In our hearts, you will always have a place—forever cherished, forever loved."

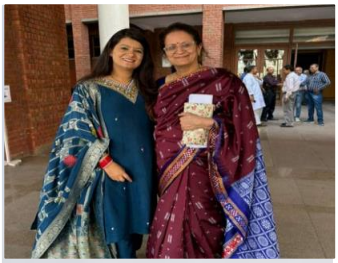
ETERNAL ECHOES

Neeraj Wadhwa mam was an epitome of grace and beauty. She was the beloved of all her peers and revered by all her students

Neeraj Ma'am was not just a guide but a beacon of wisdom and kindness. The lessons and knowledge I learned from her, are life lessons, I will carry forever.

She was our pillar of strength Neeraj mam was the personification of generosity .

Neeraj mam's absence has left a void which words can not fill. We will miss her deeply, but her spirit and teachings will always remain in our hearts, guiding us forward.



She was an apostle of optimism. Her constant support was there with us at all times.

She was god's sent angel. She was the guiding light in my life. She always pushed me to do the best. She was like a pillar of strength and was the personification of generosity

Dear Neeraj Ma'am,
It's hard to find the right words to express the profound sadness I feel at your passing. You were more than just a guide—you were a mentor, a source of inspiration, and a guiding light through the challenges of my Ph.D. journey.

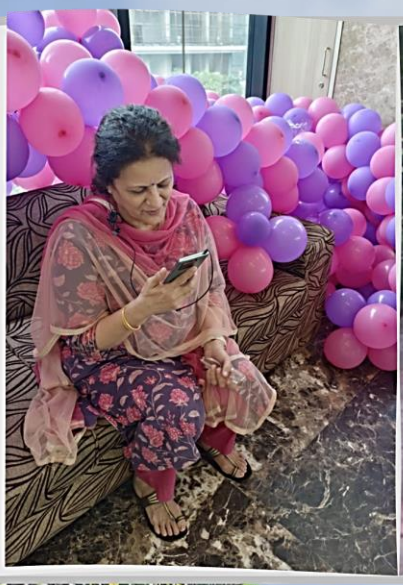
Your wisdom, patience, and encouragement shaped not only my research but also the person I am today. You had the rare ability to bring out the best in everyone you worked with, and your dedication to your students was unparalleled.

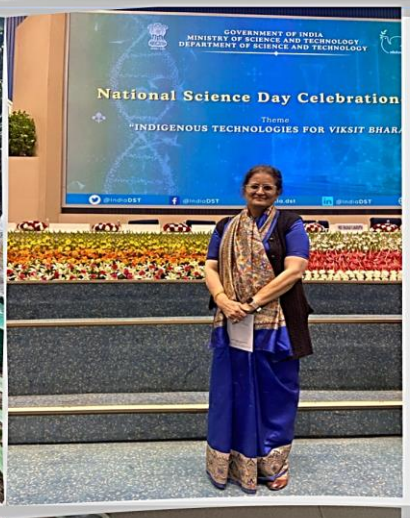
Though you are no longer with us, your teachings and the values you instilled in me will live on. I will carry forward your legacy, striving to make you proud in everything I do.

You will always be remembered, not just for your scholarly contributions, but for the kindness, warmth, and humanity you brought into the lives of those fortunate enough to have known you.
Rest in peace, Ma'am. You will be deeply missed.
With heartfelt gratitude and respect,

Dr. Sarita Agrahari

Roots of Remembrance: Ashoka Plant in Honor of Neeraj Ma'am





Neeraj Ma'am was an exceptional teacher—warm-hearted, fun-loving, and incredibly supportive. Throughout the seven years of my Ph.D., the time spent with her remains unforgettable. She always ensured that her students felt comfortable and encouraged us to openly share our thoughts and concerns. Whenever we felt down or discouraged, she had a unique way of lifting our spirits, motivating us to continue our work with renewed energy.

What was particularly remarkable about Neeraj Ma'am was her teaching approach. She never simply gave us the answers; instead, she provided insightful guidance, helping us find our own solutions when we were stuck. This method not only enhanced our learning experience but also fostered a deeper understanding and independence in our work.

She was truly a wonderful person, and I have never encountered anyone quite like her. Her presence was significant, not just to us as students, but to the entire community at JIIT. We will always miss you, Ma'am.

Dr. Sonia Sharma

"A soul that spread love, joy, and inspiration—your legacy will always remain in our hearts.“

She was god's sent angel.She was the guiding light in my life .She always pushed me to do the best . She was like a my pillar of strength and was the personification of generosity and kindness.

Her smile could light up the darkest of days, and her words carried the warmth of a thousand suns. Every action she took was filled with compassion, and she never hesitated to help those in need. To me, she was more than just a person; she was the embodiment of love and grace, a beacon of hope in a often tumultuous world.

Her laughter was contagious, bringing joy to everyone around her. In her presence, I felt invincible, as if I could conquer any challenge life threw my way. She had a way of seeing the beauty in everything, even in the most mundane moments, and her optimism was nothing short of inspiring.

But perhaps her greatest gift was her ability to listen. She had an uncanny knack for understanding the unsaid, for reading between the lines and offering comfort without judgment. Her advice was always thoughtful and wise, and she never imposed her beliefs on anyone. Instead, she guided with a gentle hand and an open heart.

In times of hardship, it was her strength that kept me grounded. When I felt lost, she was the one who helped me find my way back. Her unwavering belief in me made me believe in myself. It was through her eyes that I learned to see the world with compassion and empathy, and for that, I am eternally grateful.

Though she is no longer with us, her spirit lives on in the lessons she taught and the love she shared. She may have been an angel sent from above, but her legacy remains here, etched into the hearts of all who were fortunate enough to know her.

Ms. Apeeksha Rathi

NEW FACES NEW IDEAS

Dr. Rajnish Prakash Singh
Assistant Professor
[MICROBIAL BIOTECHNOLOGY]

Dr. Anirudh Sharma
Assistant Professor
[INDUSTRIAL BIOTECHNOLOGY]

Dr. Nidhi Batra
Assistant Professor
[BIOINFORMATICS]

New Faculty Members Joined in Biotechnology Department

Dr. Gunjan Purohit
Assistant Professor
[MEDICINAL CHEMISTRY]

Dr. Reetika Debroy
Assistant Professor
[BIOINFORMATICS]

Dr. Nivedita Mishra
Assistant Professor
[ENVIRONMENTAL BIOTECHNOLOGY]

Dr. Monika Shukla
Assistant Professor-
[PLANT BIOCHEMISTRY]

New additions would strengthen the departmental research, empower teaching and enrich the learning journey.

MILESTONE OF EXCELLENCE

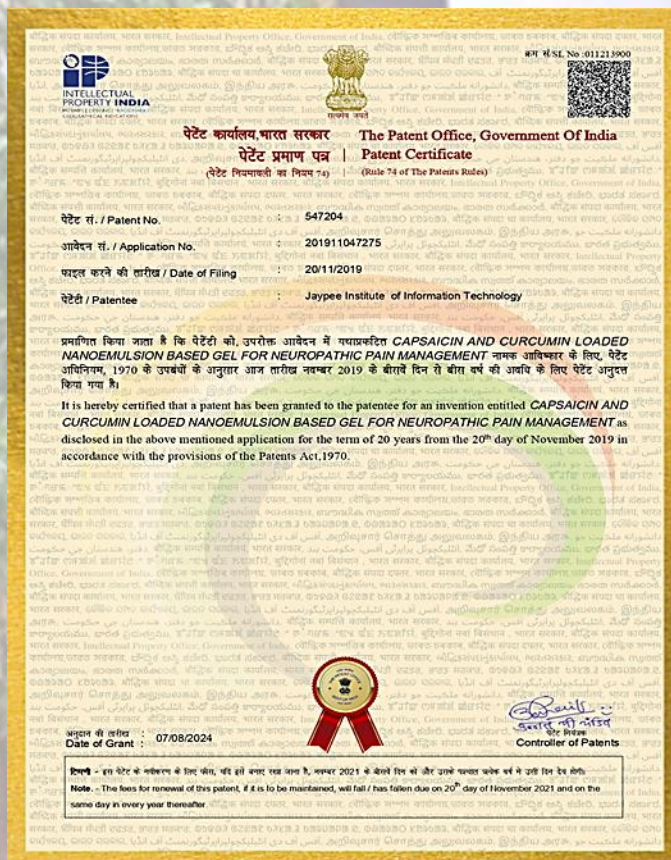
SPONSORED PROJECTS

- Porf BR Mehta, Prof Reema Gabrani, Dr Pooja Chaudhary & Prof. Shweta Dang, “BIRAC's BioNEST scheme for setting up of a Bio-Incubation Centre at Jaypee Institute of Information Technology”, DBT-BIRAC, 2024, INR 605.7 Lakhs
- Prof. Indu Verma, (PGIMER Chandigarh), Prof. Sudha Srivastava, Development and evaluation of rapid diagnostic test/device for pediatric pulmonary tuberculosis based on the detection of host/mycobacterial proteins in urine samples, ICMR, 2024, INR 53.80 Lakh
- Dr Chakresh Jain, Prof Shweta Dang, “Deciphering potential gene markers and variants associated with Adrenoleukodystrophy, based on Machine learning and system biology approaches on RNA-Seq data towards therapeutics”, DBT, 2024, INR 28.43 lakhs
- Prof. S Krishna Sundari, Dr. Kamlesh Shukla (Pt.RSU), “Evaluate ectomycorrhizal diversity in mining-disturbed and undisturbed forest ecosystems in Bastar region, generate metabolic activity profiles of forest ectomycorrhizae to propose best performing isolates for soil restoration”, DBT, 2024, 59.80400 Lakh (Total) INR 35.55200 Lakh (JIIT)
- Prof Vibha Rani, Prof Pammi Gauba, Study to explore Cross Kingdom Regulation of Anticancerous Indian Herbs derived XenomiRs in Lung cancer: Basic research for Future herbal oncotherapeutics, ICMR, 2023, INR 15 lakhs (for First Year)
- Prof Shweta Dang, Prof Pammi Gauba, Nano-carrier based nose to brain delivery for anti-psychotic drugs and natural compounds, ICMR, 2023, INR 11 lakhs (for first Year)

SPONSORED PROJECTS

- Prof. Sudha Srivastava, Dr. Deepshi Thakral (Co-PI), Development of Electrochemical biosensor for detection of circulating tumor DNA mutations in Acute myeloid leukemia, ICMR, 2022, INR 33.142 lakhs (for first two years)
- Dr. Shazia Haider, Prof. Pammi Gauba, Identification of key regulators and their controlling Mechanism in a combinatorial amyotrophic lateral sclerosis Network: an integrated bioinformatics analysis, DRDO, 2022, INR 24 lakhs
- Dr.Vibha Gupta, Prof Punit Kaur (AIIMS) AND Dr Jyoti Sharma (Institute of Bioinformatics), Reverse pharmacology and multi-target approach for designing of novel therapeutics and candidates for Covid-19, ICMR, 2022, INR 21.7 lakhs
- Prof. Pammi Gauba & Prof. Vibha Rani, Prof. Shweta Dang (Co-PI) Centre Representatives: Prof. Reema Gabrani & Prof. Indira Sarethy, Development of Natural Product Laboratory for Advance Research, DST-FIST, 2022, INR 66.00 lakhs
- Dr. Ashwani Mathur & Prof. Pammi Gauba, Design and fabrication of amperometric enzymes sensors for the erection of parabines, DBT, 2021, INR 34.7 lakhs
- Dr. Rajnish Prakash Singh, Molecular Characterization of Type VI secretion system in Enterobacter cloacae SBP-8 to employed as antibacterial tool, DBT, 2021, INR 1.13 Crore
- Prof. Pammi Gauba, Prof. Shweta Dang, Exploring the efficacy of plants and microbes for the remediation of E-waste contaminated soil, Ministry of Environment, Forest & Climate Change, 2019, INR 48.44 Lakhs

RECENTLY GRANTED PATENTS



पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र |
(पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

क्रम सं/SL No :011221900

पेटेंट सं. / Patent No. : 547204

आवेदन सं. / Application No. : 201911047275

फाइल करने की तारीख / Date of Filing : 20/11/2019

पेटेंटी / Patentee : Jaypee Institute of Information Technology

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *CAPSAICIN AND CURCUMIN LOADED NANOEMULSION BASED GEL FOR NEUROPATHIC PAIN MANAGEMENT* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख नवम्बर 2019 के बीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

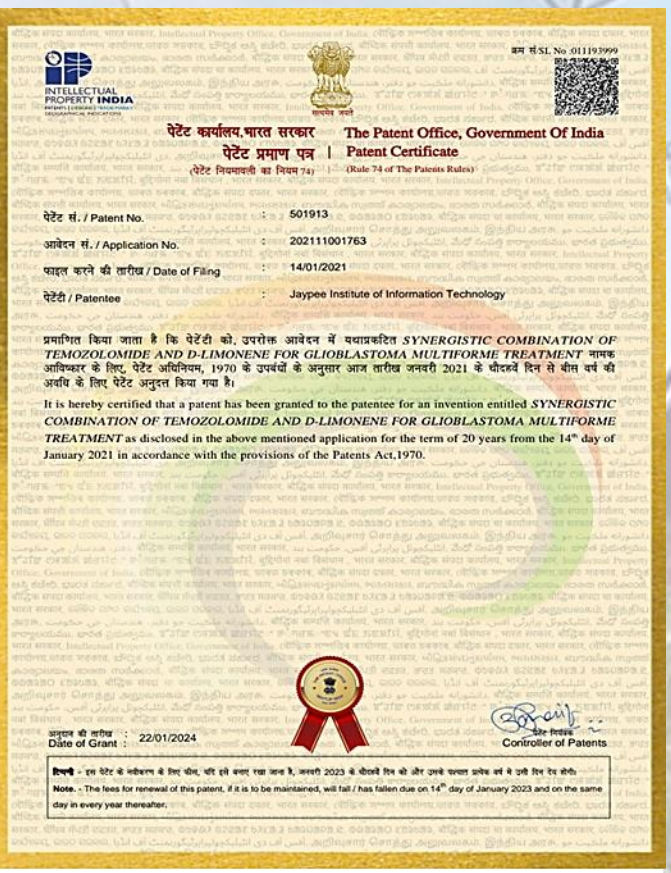
It is hereby certified that a patent has been granted to the patentee for an invention entitled *CAPSAICIN AND CURCUMIN LOADED NANOEMULSION BASED GEL FOR NEUROPATHIC PAIN MANAGEMENT* as disclosed in the above mentioned application for the term of 20 years from the 20th day of November 2019 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 07/08/2024
Date of Grant :

नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, नवम्बर 2021 के बीसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 20th day of November 2021 and on the same day in every year thereafter.



पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र |
(पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

क्रम सं/SL No :011193999

पेटेंट सं. / Patent No. : 501913

आवेदन सं. / Application No. : 202111001763

फाइल करने की तारीख / Date of Filing : 14/01/2021

पेटेंटी / Patentee : Jaypee Institute of Information Technology

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *SYNERGISTIC COMBINATION OF TEMOZOLOMIDE AND D-LIMONENE FOR GLIOBLASTOMA MULTIFORME TREATMENT* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख जनवरी 2021 के चौदहवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *SYNERGISTIC COMBINATION OF TEMOZOLOMIDE AND D-LIMONENE FOR GLIOBLASTOMA MULTIFORME TREATMENT* as disclosed in the above mentioned application for the term of 20 years from the 14th day of January 2021 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 22/01/2024
Date of Grant :

नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, जनवरी 2023 के चौदहवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 14th day of January 2023 and on the same day in every year thereafter.

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र |
(पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

क्रम सं/SL No :011190643

पेटेंट सं. / Patent No. : 494580

आवेदन सं. / Application No. : 202311007033

फाइल करने की तारीख / Date of Filing : 03/02/2023

पेटेंटी / Patentee : JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *PROTAMINE SULFATE COATED PAROXETINE PLGA NANOPARTICLES AND METHOD OF PREPARATION THEREOF* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख फरवरी 2023 के तीसरे दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

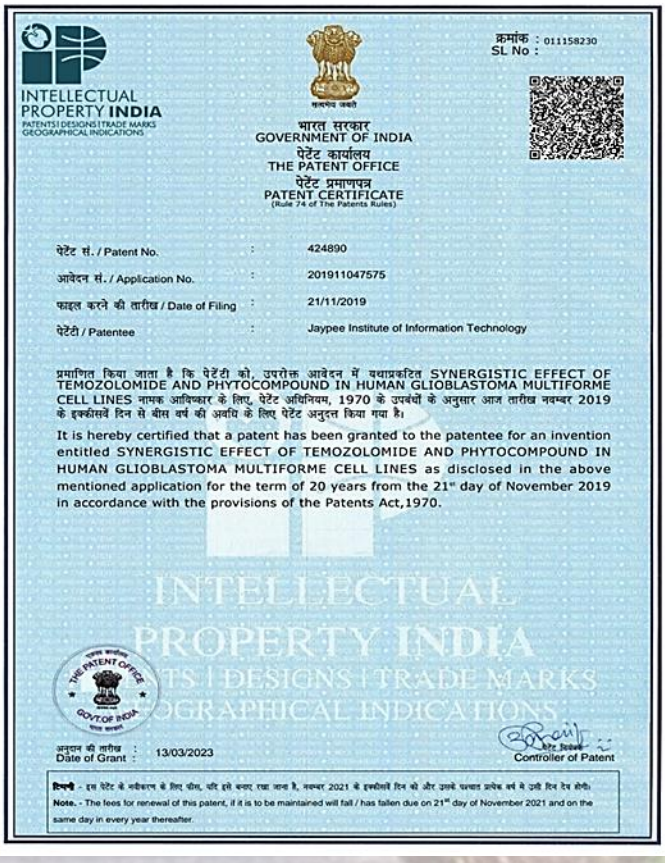
It is hereby certified that a patent has been granted to the patentee for an invention entitled *PROTAMINE SULFATE COATED PAROXETINE PLGA NANOPARTICLES AND METHOD OF PREPARATION THEREOF* as disclosed in the above mentioned application for the term of 20 years from the 3rd day of February 2023 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 04/01/2024
Date of Grant :

नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, फरवरी 2025 के तीसरे दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 3rd day of February 2025 and on the same day in every year thereafter.



INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

क्रमांक : 011158230
SL No :

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No. : 424890

आवेदन सं. / Application No. : 201911047575

फाइल करने की तारीख / Date of Filing : 21/11/2019

पेटेंटी / Patentee : Jaypee Institute of Information Technology

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित SYNERGISTIC EFFECT OF TEMOZOLOMIDE AND PHYTOCOMPOUND IN HUMAN GLIOBLASTOMA MULTIFORME CELL LINES नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख नवम्बर 2019 के इक्कीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled SYNERGISTIC EFFECT OF TEMOZOLOMIDE AND PHYTOCOMPOUND IN HUMAN GLIOBLASTOMA MULTIFORME CELL LINES as disclosed in the above mentioned application for the term of 20 years from the 21st day of November 2019 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 13/03/2023
Date of Grant :

Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, नवम्बर 2021 के इक्कीसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 21st day of November 2021 and on the same day in every year thereafter.

PATENT INSIGHTS

Department has consistently demonstrated a strong commitment to advancing research and innovation through intellectual property protection. With a robust portfolio of patents, the faculty is addressing critical global challenges in diverse domain.

S. No	Patent Details	Status
1.	PAN 202411088004 Synergistic Effect of Memantine and Nicotinamide on Human Glioblastoma Multiforme Cell Line [Prof. Shweta Dang, Pallavi Kumari, and Sandini Garg]	Published 29.11.2024
2.	PAN 202411066588 Development Of Flaxseeds and Red Rice Cookies for Malnutrition, Gut Health and Cholesterol Management [Shubhi Singh and Dr. Smriti Gaur]	Published 20.09.2024
3.	PAN 202411066288 Preparation And Quality Evaluation of Nutrient Dense Cookies Exhibiting Multi-Functional Health Beneficial Properties [Shubhi Singh and Dr. Smriti Gaur]	Published 20.09.2024
4.	PAN 202411052091 Enzyme Biosensor for Detection of Methyl Paraben and Design Strategy Thereof [Ms. Pooja Upadhyay, Prof. Pammi Gauba and Dr. Ashwani Mathur]	Published 26.07.2024
5.	PAN 202311083394 A Process for Cultivation of *Humulus Lupulus* in Sparged hydroponic System [Ms. Tripti Singh and Prof. Ashwani Mathur]	Published 12.01.2024
6.	PAN 202311076563 Cytotoxicity Effect of a Combination of Escitalopram Oxalate and Ellagic Acid Against Breast Cancer Cell Line [Prof. Shweta Dang and Ms. Pallavi Kumari]	Published 08.12.2023

PATENT INSIGHTS

S. No	Patent Details	Status
7.	PAN 202311020039 Acoustics Based Grasshopper Population Controller [Dr. Chakresh Kumar Jain and Dr. Kapil Dev Tyagi]	Published 12.05.2023
8.	PAN 202311036281 A Method of Preparing Bacterial Cellulose Based Antimicrobial Biomaterial by Komagataeibacter Saccharivorans BC-G1 Strain [Dr. Garima Mathur and Mr. Sammrith Srivastav]	Published 30.06.2023
9.	PAN 202311007033 Protamine Sulfate Coated Paroxetine PLGANanoparticles and Method of Preparation Thereof [Ms. Surbhi Sharma and Prof. Shweta Dang]	Granted (04.01.2024)
10.	PAN 202211072496 A Process to Inhibit Mycobacterium Tuberculosis Isocitrate Lyases Through Vasicine [Dr. Vibha Gupta, Dr. Harpreet Singh and Ms. Monika Antil]	Published (30.12.2022)
11.	PAN 202211060672 Syzygium Aromaticum Extract Compounds as Trimethylamine Inhibitor in Diabetic Cardiomyopathy [Prof. Vibha Rani and Ms. Shivani Singhal]	Published (28.10.2022)
12.	PAN 202211064813 Method From Rare Actinobacterium [Dr. Nidhi Srivastava and Prof. Indira P. Sarethy]	Published (25.11.2022)
13.	PAN 202111052498 Orange Flavored Synbiotic Corn Chocolate: Composition and A Method of Preparation Thereof [Dr. Smriti Gaur and Shubhi Singh]	Published (28.01.2022)

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S. No	Patent Details	Status
14.	PAN 202111032404 Development Of Synbiotic Com Cinnamon Chocolate and Its Functional Analysis. [Dr. Smriti Gaur and Shubhi Singh]	Published (28.01.2022)
15.	PAN 202111005772 Polynucleotide Novel Molecule in Cardiovascular Therapeutics [Prof. Vibha Rani and Priyanka Mathur]	Published (25.02.2022)
16.	PAN 202111001763 Combination Of Temozolomide And D-Limonene for Glioblastoma Multiforme Treatment [Prof. Reema Gabrani and Megha Gautam]	FER Issued (22.01.2024)
17.	PAN 202111005634 Recombinant Biocatalyst with Enzymatic Activity [Dr. Samiya Khan, Dr. Nidhi Gupta and Prof. Pammi Gauba]	Published (14.01.2022)
18.	PAN 202111005269 Mitochondria Targeting Ability of Natural Compound in Breast Cancer and Its Synergistic Effect with Existing Therapy [Dr. Shalini Mani and Geeta Swargiary]	Published (11-032022)
19.	PAN 202011032629 Recombinant Rhodococcus Sp. With Dioxygenase Gene Cassette [Prof. Pammi Gauba]	Published (23.09.2022)
20.	PAN 202011020344 Poly Ribonucleotide Sequence [(Tag)7 C2] As Type Iv Collagenase Natural Inhibitor [Prof. Vibha Rani]	Published (19.11.2021)

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21.	PAN 202011019986 Synergistic Effect of Herbal Plant Extract Against Urolithiasis [Dr. Priyadarshini and Chetna Faujdar]	Published (19.11.2021)
22.	PAN 202011001014 Co-Delivery of Baclofen &Lamotrigine Via PLGA Nanoparticles [Prof. Shweta Dang, Kuldeep Nigam and Amit Tyagi]	Granted (22.09.2022)
23.	PAN 201911051941 Biocatalyst Dioxygenase Activity [Dr. Samiya Khan, Dr. Nidhi Gupta and Prof. Pammi Gauba]	Published (17.01.2020)
24.	PAN 201911047575 Synergistic Effect of Temozolomide and Phytocompound in Human Glioblastomas Multiforme Cell Lines. [Prof. Reema Gabrani and Megha Gautam]	Granted (17.03.2023)
25.	PAN 201911047275 Capsaicin And Curcumin Loaded Nanoemulsion Based Gel for Neuropathic Pain Management. [Prof. Shweta Dang and Kuldeep Nigam]	Granted (07.08.2024)
26.	PAN 2782/DEL/2010 Thermally Stable Enzymes with Improved Biocatalytic Activity and A Process To Prepare The Same By Making Their Nanoparticles [Prof. Sudha Srivastava and Shikha Sharma]	Granted Patent (16.12.2011)
27.	PAN201811012008 An Improved Electrode for Electrochemical Device [Prof. Sudha Srivastava and Rahul Saxena]	Published (04.10.2019)

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FEW ACCOLADES

Dr. Smriti Gaur

Associate Professor
Department of Biotechnology,
JIIT Noida

Research work featured on the *Front Cover* of the renowned *ACS Food Science and Technology* journal

Received **Best Oral Presentation Award** at *Global Indian Young Scientists Research and Innovation Conference* (GI-YSRI)- 2023

Department of Biotechnology proudly delivers

RESEARCH ACHIEVEMENTS CONGRATULATIONS

to **Dr. Smriti Gaur** and **Ms. Shubhi Singh** for their research publication in the prestigious "**Food Chemistry**" journal

(Impact Factor 8.5, Q-1, SCI)

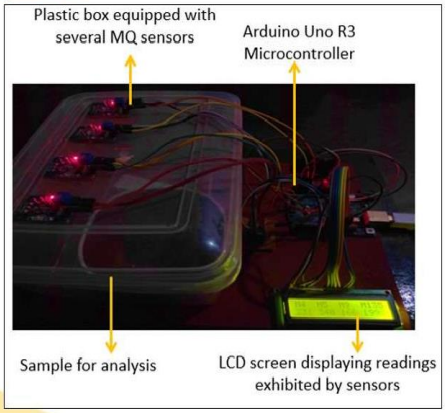
Research Topic: **Development of Rapid and Non-Destructive Electric Nose (E-Nose) System for Shelf Life Evaluation of Different Edible Seeds**

ELSEVIER

Food Chemistry
Volume 426, 15 November 2023, 136562

FOOD CHEMISTRY

Special recognition of the work in the news column of *Current Science Reports*



Sustainable Energy & Fuels

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Phototrophic microbial fuel cells: a greener approach to sustainable power generation and wastewater treatment

Jayesh M. Sonawane, [a+ab] Ankisha Vijay,[c] Tianyang Deng,[a] Prakash C. Ghosh [d] and Jesse Greener [a+ae]

Microbial fuel cells (MFCs) rely on the capacity of electrode-adhered electroactive bacteria to oxidize organic matter and generate electrons. Typical MFCs are highly engineered systems that can be applied as green tools to alleviate the burden of waste streams. Phototrophic MFCs (PhMFCs) are a promising variant that can be implemented indoors or outdoors and use the power of the sun to boost efforts in on-site environmental remediation, biomass generation, and power generation. PhMFC variations include plant-based and algal-based MFCs. Algal-based MFCs can incorporate special photosynthetic action at either the anode or cathode, enhancing or replacing the role of other bacteria in regular bacterial MFCs. Plant-based MFCs can be more complex due to the role of the root system near an electrode and its interaction with electrode-adhered bacteria, and they are nearly universally operated outdoors in either natural or engineered conditions. This review emphasizes the potential of phototrophic MFCs in achieving true carbon neutrality, producing bioelectricity, and detecting toxic substances in wastewater sources. It also identifies gaps, such as the need for certain optimizations, coupling with new enabling technologies and the potential for combining photosynthetic microbes and plants into the same system. Overall, the future prospects for phototrophic MFCs to contribute to sustainable wastewater treatment and energy generation are promising.

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rsc.li/sustainable-energy

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Dr Jayesh Sonawane earned his PhD from the IIT Bombay and Monash University. Recently he was awarded the prestigious Fulbright Fellowship in the United States with Prof. Derek Lovley at the University of Massachusetts, Amherst, where he is working on protein nanowires for clinical and environmental sensing applications. Dr Sonawane is the recipient of the "Excellence Research Award 2016-18" from Prime Minister Narendra Modi and a Shastri Fellowship from the Shastri Indo-Canadian Institute. His background is in development of conducting polymer electrodes for microbial fuel cells, hybrid bioelectrochemical treatment processes, and microfluidic bioelectrochemical systems for live biofilm imaging.

Dr Ankisha Vijay is an Assistant Professor in the Department of Biotechnology, Jaypee Institute of Information Technology, Noida currently. She did her postdoc from Department of Energy Science and Engineering, IIT Bombay. She did her PhD in Environmental Biotechnology from IIT Jodhpur. She has worked on waste to energy conversion processes to develop sustainable biotechnological solutions to water pollution and energy. Her doctoral work addressed the challenges of simultaneous removal of U(vi) and nitrate from nuclear waste in microbial fuel cells (MFC). Her core area of research is environmental biotechnology/engineering and bioremediation.

Review paper published in Sustainable Energy & Fuels (IF- 5.6), selected as the cover article of this journal.

FEW ACCOLADES

UNIVERSITY GRANTS COMMISSION

CERTIFICATE OF P.1RTICIP.IT10fi

This is to certify that Prof./Dr./Mr./Ms. *Pammi Gauba* of *Jaypee Institute of Information Technology* has participated in the one-day Women Leadership Program entitled ***"Women Leaders: Shaping Academic Excellence for VIKSIT Bharat @2047"*** organized by the University Grants Commission. The program was held on 13th December 2024, at Dogra Hall, IIT Delhi.

Dr. Ashima Mangla
Joint Secretary, UGC

Dept. of Biotechnology, Jaypee Institute of Information Technology, Noida was awarded **'Best Team Research'** as a part of ICMR *i*-DRONE team at **DHR-ICMR Research Excellence Summit 2024**. The occasion was graced by Hon'ble Union ministers Sh. J.P. Nadda Ji, Smt. Anupriya Patel Ji, Dr. V.K. Paul (NITI Ayog Member-Health), Dr. Rajiv Bahl, Secy DHR & DG, ICMR, Smt. Anu Nagar, JS, DHR and Smt. Manisha Saxena, Sr. DDG & Sr. FA, ICMR.

Outstanding 29th Contribution & Research in Natural Sciences at Ek Nari —100 Pe Bhari Conference, Exhibition & Awards 2024 The South Asia's Biggest Women Dominance Conference scheduled on February 2024, Vigyan Bhawan, New Delhi, India

FEW ACCOLADES

TOP 2% SCIENTISTS
LEADING MINDS IN SCIENCE

Heartiest congratulations to our faculty for achieving the incredible distinction of being ranked among the top 2% of scientists

The faculty member of the department served as a Session Panelist at various conferences, guest lectures, and other academic events

THE EVENT SPECTRUM

7TH INTERNATIONAL CONFERENCE ON ADVANCES IN BIOSCIENCES & BIOTECHNOLOGY-2024

Three days, 7th International Conference on Advances in Biosciences and Biotechnology (ICABB-2024) was inaugurated by Dr. Rajesh S. Gokhale. The organizer of this prestigious annual event were Prof. Pammi Gauba, Prof. Indira P Sarethy, and Dr. Smriti Gaur. The inaugural proceedings of the conference were further enhanced by the esteemed presence of Prof. S. C. Saxena, Pro-Chancellor, and Prof. Bodh Raj Mehta, Vice-Chancellor, Jaypee Institute of Information Technology, Noida. Their participation added significant academic gravitas to the event. During the inaugural session, a noteworthy highlight was the release of the conference abstract book.

29th Jan - 2nd Feb, 2024

FDP ON INNOVATIVE APPROACHES IN ENVIRONMENTAL RESEARCH & SUSTAINABLE DEVELOPMENT

A week-long faculty development initiative centred on "Innovative Approaches in Environmental Research and Sustainable Development" was organized by the Department of Biotechnology at JIIT, Noida, from July 16th to July 22nd, 2024, employing a hybrid format. The Faculty Development Program (FDP) was orchestrated to augment the knowledge and proficiency of faculty members in the interdisciplinary domains of environmental studies, climate change, Circular Economy, greenhouse gas emissions, 3D bioprinting technologies, e-waste management, and sustainable practices, among other pertinent topics. This program sought to empower educators with essential competencies to incorporate environmental awareness into their pedagogical methodologies and research endeavors, thereby facilitating the advancement of a sustainable future through educational frameworks.

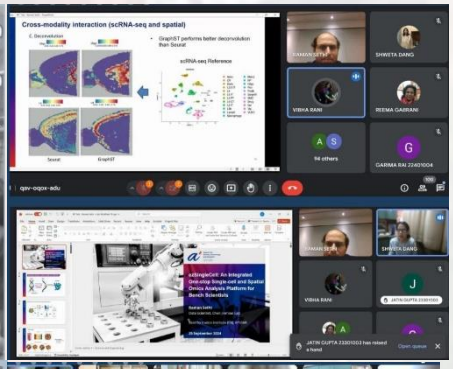
WORKSHOP ON BIOINFORMATICS APPROACHES IN METAGENOMICS SEQUENCE ANALYSIS

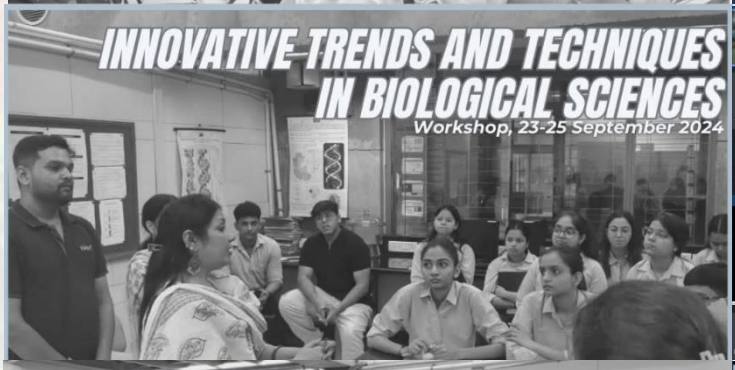
The workshop encompassed a comprehensive and precise elucidation of the fundamental principles of metagenomics and gene sequencing. A variety of bioinformatics instruments were introduced, alongside a detailed explanation of their application within the field of bioinformatics. The methodologies and tools elucidated were exceptionally practical, and the instructor facilitated their accessibility for the participants. Each student present at the workshop was afforded hands-on experience. The comprehension of metagenomic gene sequencing was elucidated with exceptional clarity.

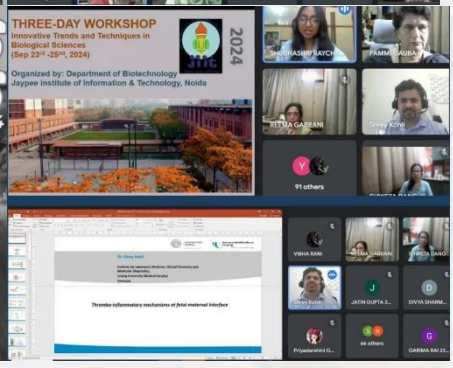
21st Mar – 23rd Mar, 2024

WORKSHOP ON INNOVATIVE TRENDS AND TECHNIQUES IN BIOLOGICAL SCIENCES

The Department of Biotechnology organized a three day day workshop on Innovative Trends and Techniques in Biological Sciences from 23rd to 25th September 2024. Day 1 covered the talk by Dr. Shrey Kohli and a Demo session by Hi-Media on their Automated Nucleic Acid Extractor. Day 2 comprised of a talk given by Dr. Suruchi Arora and a Demo session on Differential Scanning Calorimetry. The final day the talk was given by Dr. Raman Sethi and a Demo session by Microlit.







WORKSHOP ON NEXT GENERATION SEQUENCING: FROM THEORY TO PRACTICE

The Department of Biotechnology at Jaypee Institute of Information Technology (JIIT) conducted a three-day workshop on “Next Generation Sequencing: From Theory to Practice” from October 22nd to 24th, 2024. The workshop included lectures and hands-on sessions led by distinguished scientists and industry experts on various aspects of Next Generation Sequencing (NGS) data generation and analysis. Participants acquired practical skills and insights through hands-on sessions and expert discussions to implement NGS in diverse research and clinical settings.

WORKSHOP ON 3D STEM CELL CULTURE: THEORY AND PRACTICES

The Department of Biotechnology at JIIT Noida conducted a three-day virtual workshop on "3D Stem Cell Culture: Theory and Practices" from November 20th to 22nd, 2024. Esteemed scientists Prof. Bipasha Bose, Dr. Sudheer Shenoy P, and Dr. Debajit Chaudhury from Yenepoya Research Centre, Karnataka, participated in the event. The sessions provided an in-depth understanding of innovative techniques and advancements in 3D stem cell culture through valuable insights and live video demonstrations. The organization of the workshop was led by Prof. Pammi Gauba and Dr. Shalini Mani. The intended audience comprised graduate students, post-graduate students, PhD scholars, and faculty members from various institutions across India.

ELEVATING THE JOURNEY WITH ADDITIONAL EVENTS

Event Name
Session on “International Science week, January 5, 2024
RIBOSE conducted mega event - "HYDROPHILIC“, February 25, 2024
Expert Talk on "Process of Innovation Development & Technology Readiness Level (TRL)" & "Commercialization of Lab Technologies & Tech-Transfer" by Mr. Sushant Kumar, Manager, Landscape Department, Grey B research, Mohali, February 27, 2024
Mentoring Session on “Product Development and Entrepreneurship in Food Biotechnology” by Dr. HP Singh, Founder-Director, Chote Vyapar Ki Pathshala & Export Management & Services Institute. February 28, 2024
Invited talk on "Future Medicine" (Dr. Amulya Panda, Associate Director, Panacea Biotec and Former Director, National Institute of Immunology), April 18, 2024
The Shakti Within- A Journey to Your True Super Power, April 19, 2024
Compute & Cultivate: HPC for Biotech Innovations, May 16. 2024
Jaypee School Teachers' Training, May 20-25, 2024
Yoga for “Women Empowerment” on International Yoga Day, June 21 2024

ELEVATING THE JOURNEY WITH ADDITIONAL EVENTS

Event Name
Session on “Angel Investment and Venture Capital Funding”, August 27, 2024
Panel Discussion on “Transformative Innovations in Biotechnology”, August 28, 2024
Talk on “Ozone Protection and Climate Change: A Unified Approach for a Sustainable Future”, September 16, 2024
Workshop on “Career Opportunities in Food Labelling”, September 23, 2024
Session on “Gynaecological Cancer Awareness Month”, September 24, 2024
Session on “Revolutionary Advances in Biotechnology”, November 9, 2024
Guest lecture on the occasion of“ World Science Day for Peace and Development”, November 11, 2024
One-day International workshop on “Understanding Particle Characterization: A Workshop on Size and Zeta Potential Measurement”, November 19, 2024
Session on “Mental health awareness and drug abuse”, November 20, 2024
Workshop on “Entrepreneurship and Innovation as a Career Opportunity”, November 22, 2024


SPARK STUDIO
STUDENT CORNER

LIVING CANVASES: WHERE ART MEET SCIENCE

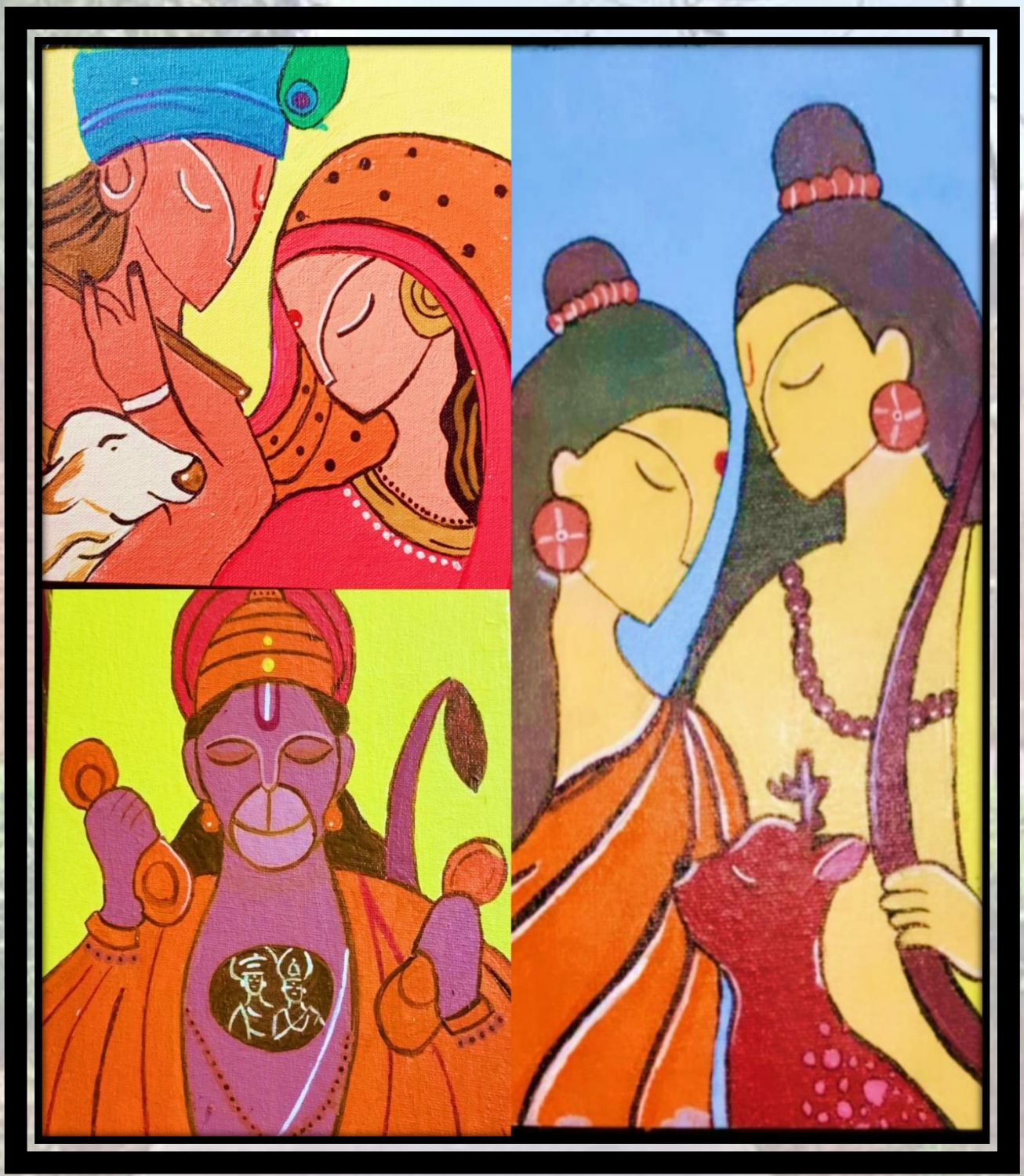
Shreya Roy, PhD Scholar

Dhwani Gupta, B. Tech 1st Year

LIVING CANVASES: WHERE ART MEET SCIENCE

Ankit Kumar, PhD Scholar

LIVING CANVASES: WHERE ART MEET SCIENCE



Ritika, PhD Scholar

फिर आएगा वो वक़्त


Picture Credit: Aakanksha Mittal, M.Tech

फिर आएगा एक वक़्त जब सब सही होगा...!
खुशियां छोड़ आए जिस वक़्त में, फिर वक़्त वही होगा...!

रात है अंधेरी, मगर है ढूंढती उजाले को...!
निकलेगा आफ़ताब सवेरा फिर से वही होगा...!
मत हार लड़ाई ऐसे, जंग में तू है नहीं बिल्कुल अकेला...!
गुज़र जायेगा ये वक़्त भी, फिर कभी नहीं होगा...!
फिर आएगा वो वक़्त जब सब सही होगा!

फिर आएगा वो वक़्त जब सब सही होगा! मुस्कुरा तू भी,
दे मुस्कुराने की वजह सबको...!
इस वक़्त-ए-मुश्किल में गुज़ारा तभी होगा...!
फिर आएगा वो वक़्त जब सब सही होगा!
फिर आएगा वो वक़्त जब सब सही होगा!

Piyush Kumar, PhD Scholar

कॉलेज का जीवन

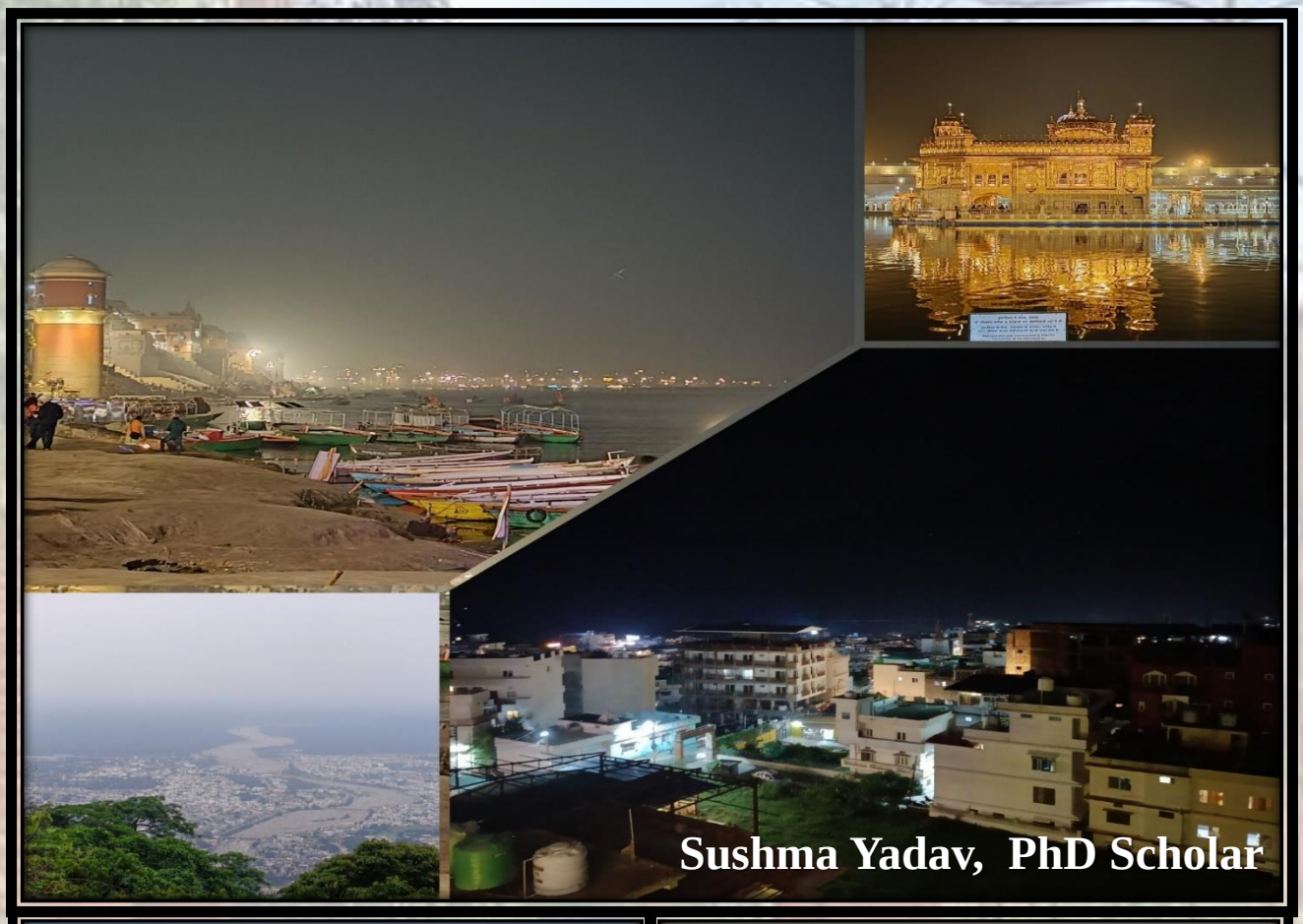
कॉलेज का जीवन, एक नई किताब,
हर पन्ना लिखता , अनगिनत ख्वाब।
चौखट पर कदम रखते ही मुस्कान,
जैसे मिल गया हो, आसमान।
कॉलेज का जीवन, सपनों की बस्ती,
दोस्तों का प्यार, और इम्प्रेशन की मस्ती।

टक शॉप की चाय, गपशप के रंग,
हर दिन था जादू, हर पल अनंग।
क्लासरूम की वो हलचल भरी बातें,
सपनों के संग ज़मीन से मुलाक़ातें।
प्रोफेसर का ज्ञान, कभी मीठा कभी खट्टा,
कभी पाथवेज़ , तो कभी पेपर्स का रट्टा।

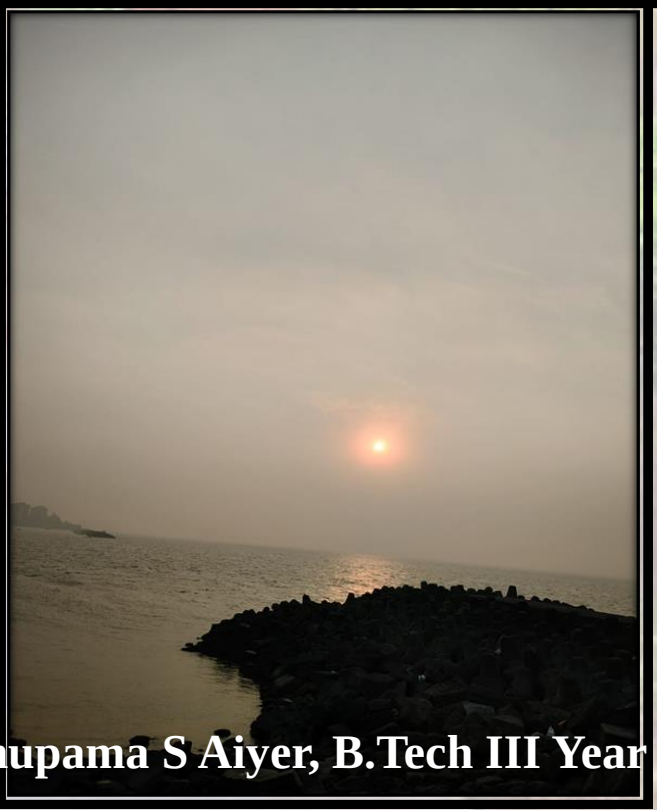
लाइब्रेरी की शांति, एग्ज़ाम की रात,
नोट्स की कॉपी, वो पढ़ाई की बात।
मंच का जुनून, तालियों की गूंज,
दिलों में बसते हजारों धून ।
दोस्ती के किस्से, बिछड़नों का डर,
यादें जो रहेगी हमेशा संग।
कॉलेज के दिन वो प्यारी कहानी ,
दिल मैं बस्ती है जैसे निशानी।

Ritika, PhD Scholar

FOCUSING ON MOMENTS, FRAMING LIFE



Sushma Yadav, PhD Scholar



Anupama S Aiyer, B.Tech III Year

FOCUSING ON MOMENTS, FRAMING LIFE

Ankit Kumar, PhD Scholar

ADVANCED PROSTHETIC LIMBS AND EMERGING TECHNOLOGIES

Cutting-edge prosthetics that incorporate robotics, artificial materials, and neural engineering are revolutionizing healthcare and mobility. These advanced instruments are equipped with functions that mimic human emotions due to novel neural interfaces and brain-machine connections. This paper examines the driving forces behind advanced prosthetic limb development, their implications for users, and the ethical issues associated with these technologies. Through case studies and current research, we highlight how these innovations can significantly improve lives while also raising ethical concerns.

Advanced Prosthetic Limbs: Myoelectric Prosthetics

Myoelectric prosthetics are sophisticated artificial limbs designed to enhance the mobility of individuals who have lost their legs. These high-tech devices utilize muscle signals from the user's body to replicate natural limb movements. Recent advancements in artificial intelligence (AI) and sensory feedback are transforming this field, leading to significant improvements in prosthetic technology.

How Myoelectric Prosthetics Work: Myoelectric prosthetics operate through complex mechanisms that detect electrical signals generated by voluntary contractions of residual muscles. Sensors placed on these muscles capture electromyographic (EMG) signals, which are then amplified, filtered, and processed to differentiate between various muscle contractions. Actuators within the prosthetic adjust joint angles based on these detected contractions, enabling controlled movement. Some advanced myoelectric prostheses now include sensory feedback systems that provide tactile, visual, and auditory responses, allowing for real-time adjustments to enhance precision and adaptability.

Advantages of Myoelectric Prosthetics

Myoelectric prosthetic limbs are engineered to closely match the dynamics of natural movement, ensuring both functionality and aesthetic appeal. Key advantages include:

-**Natural Movement:** Advanced actuators and mechanical structures enable the replication of complex movements found in natural joints, facilitating smooth transitions.

- **Fine Motor Skills:** Users can perform intricate tasks that require fine motor skills due to the sophisticated design of these prostheses.

-**Customizability**: Features such as adjustable grips, replaceable tools, and programmable settings allow users to switch modes seamlessly for different tasks.

- **Aesthetic Design:** Modern prostheses can be tailored to mimic human limbs in terms of skin tone, texture, and form.

Ethical Considerations

While advancements in prosthetic technology offer remarkable benefits, they also present several ethical challenges:

- **Accessibility:** The high costs associated with cutting-edge prosthetics may limit access for many potential users.

-**Privacy Concerns:** As prosthetics become more integrated with digital technologies, issues surrounding data privacy and security arise.

-**Dependence on Technology:** There is a risk that users may become overly reliant on these devices, potentially affecting their physical capabilities over time.

Conclusion

The evolution of myoelectric prosthetics through innovations in robotics and AI is reshaping the landscape of limb replacement. These technologies not only restore mobility but also enhance the quality of life for amputees. However, it is essential to address ethical considerations to ensure equitable access and protect user privacy. Ongoing research and collaboration among medical professionals, engineers, and ethicists will be crucial in navigating these challenges as we move towards a future where advanced prosthetics can significantly improve lives while maintaining ethical integrity.

Dhruv Agrawal & Maitry Goel, B.Tech

RECENT BREAKTHROUGHS IN BIOTECHNOLOGY: SHAPING THE FUTURE

The field of biotechnology is rapidly evolving, leading to groundbreaking discoveries that are reshaping medical treatments, environmental protection, and agriculture. Here are five recent major breakthroughs that highlight this transformation:

1. CRISPR for Sickle Cell Anemia

CRISPR-Cas9 technology has made significant strides in gene therapy for sickle cell anemia. Researchers successfully edited the beta-globin gene in hematopoietic stem cells from patients, resulting in the production of healthy red blood cells post-infusion. Clinical trials have shown remarkable benefits, including reduced sickle cell crises and improved hemoglobin levels, paving the way for a potential cure for this genetic disorder[1][3].

2. Personalized mRNA Vaccines for Melanoma

Following the success of mRNA vaccines during the COVID-19 pandemic, personalized mRNA vaccines are being developed for cancer treatment. These vaccines are tailored to encode tumor-specific antigens from patients' own tumor cells, enhancing immune responses against melanoma. Trials have demonstrated significant tumor regression and minimal side effects, offering new hope for cancer treatment[2][5].

3. Advanced Brain Organoids for Alzheimer’s Research

Recent advancements in organoid technology have led to the creation of brain organoids that closely mimic human brain tissue. These models are crucial for studying neurodegenerative diseases like Alzheimer’s, helping researchers identify novel biomarkers and test new treatments effectively[3][4].

4. Artificial Cells for Environmental Remediation

Synthetic biology has produced artificial cells capable of detecting and degrading environmental pollutants such as heavy metals and pesticides. These engineered cells can be deployed in contaminated areas to effectively neutralize toxic agents, representing a significant tool in combating pollution[4][6].

5. AI-Driven Discovery of Anticancer Agents

The integration of artificial intelligence in drug discovery has revolutionized the identification of new anticancer agents. AI algorithms analyze vast chemical libraries to predict efficacy against cancer cells, significantly speeding up the discovery process and reducing costs associated with bringing new drugs to market[5][6].

In conclusion, these innovations demonstrate biotechnology's potential to address some of humanity's most pressing challenges, fostering a healthier and more sustainable future across various domains.

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Palak Bhatia, B.Tech


SPARK STUDIO
FACULTY CORNER

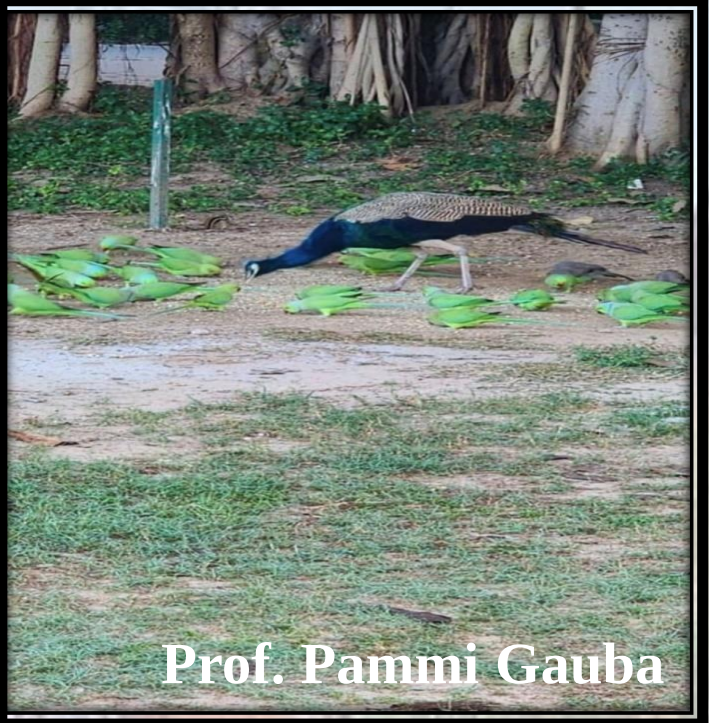
वो जो सरहद पर हैं

क्यों पूजते हो मंदिर में?
भगवान वहाँ सरहद पे हैं ।
तुम ज़िंदा हो उनके बल पर,
ये साँसें उनकी ज़िद से हैं ।
ये खून रगों में उनका है,
ये ताक़त उनके कंधों से ।
चलते हो उनके पैरों से ,
ऊँचाई उन्ही के क़द से है ।
तुम सोते हो कि वो जागे,
तुम जागे हो कि वो जागे।
आँखों में सपने उनसे हैं ,
मुस्कान उन्ही के लब से है ।
सरसों झूमे, कोयल गाये,
राखी, करवा आये जाये।
होली दीवाली उनसे है,
हर ईद उनकी रहमत से है।

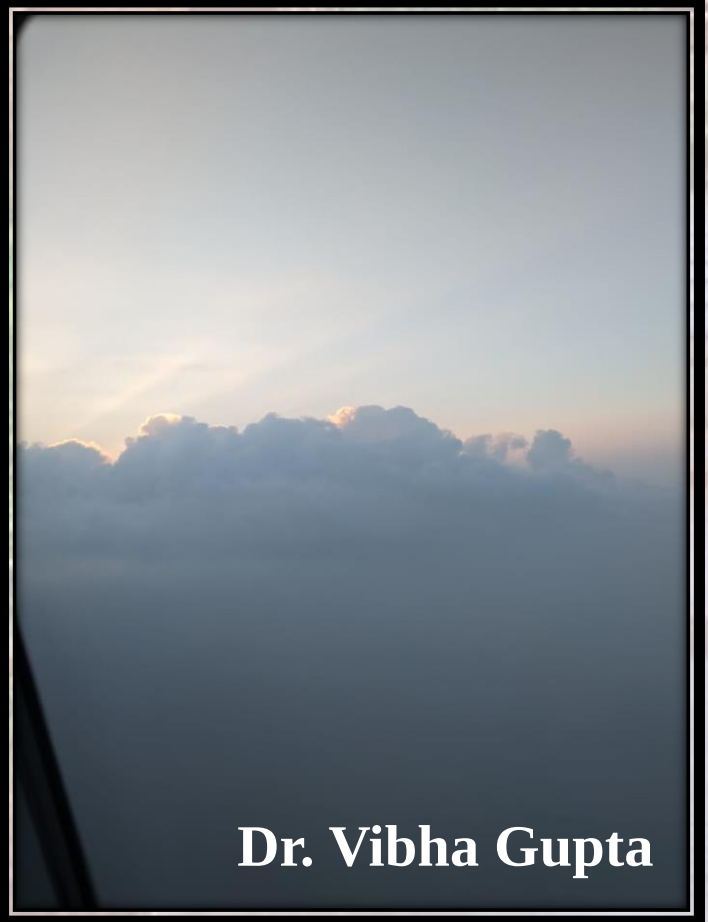
Prof. Rachana

Picture Credit: Dhwani Gupta, B.Tech First Yr

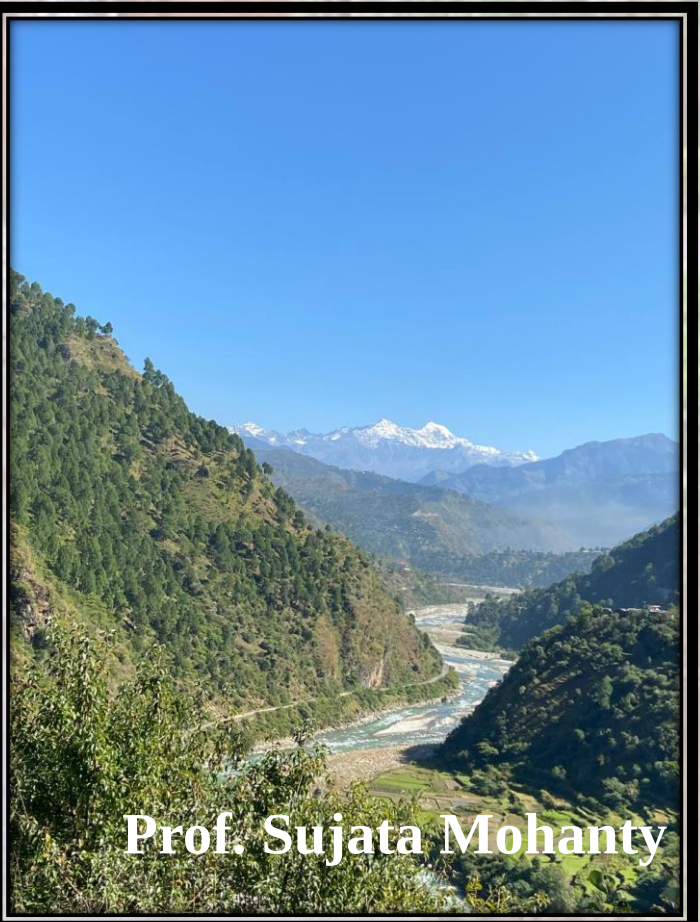
FOCUSING ON MOMENTS, FRAMING LIFE



Prof. Pammi Gauba



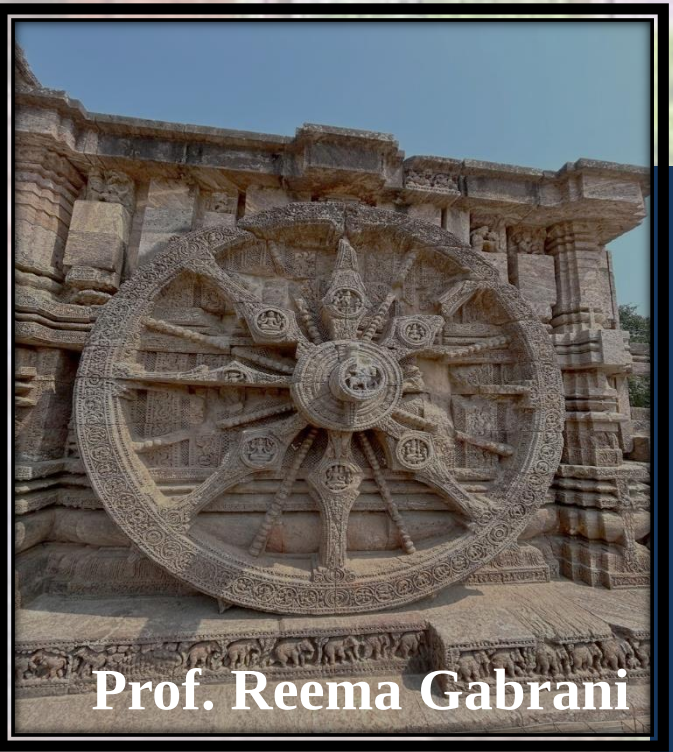
Dr. Vibha Gupta



Prof. Sujata Mohanty

FOCUSING ON MOMENTS, FRAMING LIFE

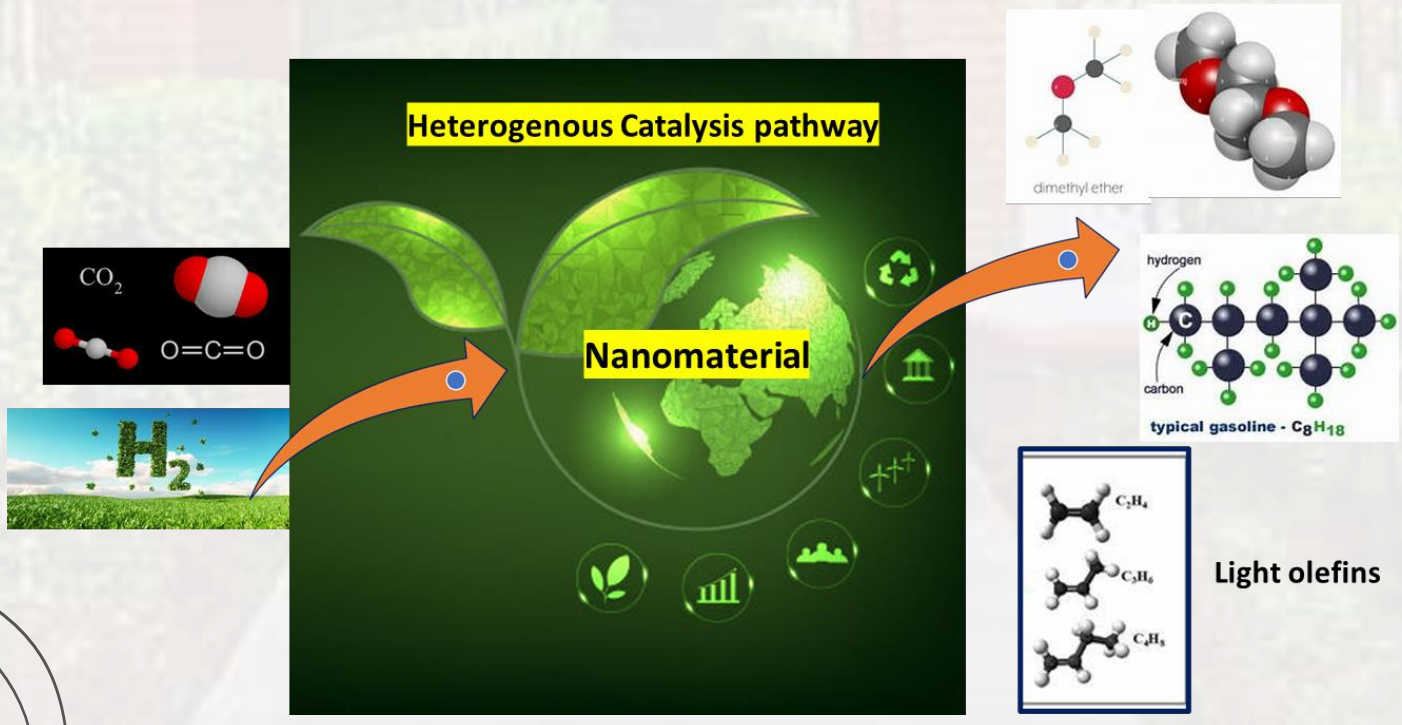
Prof. Vibha Rani



Prof. Reema Gabrani

HETEROGENEOUS CATALYSIS FOR CO_2 HYDROGENATION TO HIGH-VALUE PRODUCTS

Carbon capture and conversion has emerged as a significant research area, offering an alternative approach to producing valuable chemicals and useful fuels. The development of innovative catalytic systems focused on carbon dioxide hydrogenation is accelerating, leading to diverse advancements in this field. To mitigate the environmental impact, the carbon dioxide CO_2 capture storage (CCS) strategies have been studied extensively and thoroughly implemented over the past few decades. However, effectively utilizing the large volumes of captured carbon dioxide remains challenging due to a lack of viable industrial applications. Recognizing that fossil fuels are formed through a natural carbon-hydrogenation process during photosynthesis, it follows that synthetic CO_2 hydrogenation may be the most effective method for regenerating renewable combustible hydrocarbons. It is essential to find strategies to convert captured and stored CO2 into valuable products.



However, the thermal stability of CO_2 presents a significant challenge for CO_2 hydrogenation, resulting in low conversion rates for the reaction. However, in recent years, considerable progress has been made in transforming the CO_2 molecule into single carbon (C1) products, such as carbon monoxide, formic acid, methanol, and methane. There are two primary methods for converting CO_2 into valuable C_1 or C_{2+} synthons: hydrothermal chemical reduction of CO_2 in water and thermocatalytic hydrogenation of CO_2. Additionally, CO hydrogenation can be achieved through reverse water gas shift reactions (RWGS). Recently, Reykjavik in Iceland industrialized the CO_2-to-methanol (CTM) strategy by utilizing suitable heterogeneous catalysis, supported by geothermal energy. Numerous approaches to the heterogeneous catalytic hydrogenation of CO_2 have been published, including electrochemical, thermal, and photochemical methods. These studies also discuss the resulting product distribution based on the catalysts used. It is essential to explore heterogeneous catalytic routes more extensively, as they offer significant advantages in the reproducibility of CO_2 hydrogenation to C_1 or C_{2+} products. Figure 1 depicts the plausible ways with which one can devise and employ the synthetic methodologies for stored and captured CO_2 to valuable synthons or fine chemicals. Furthermore, there is a growing interest in transformational technologies, particularly the development of heterogeneous catalysts with the assistance of artificial intelligence (AI). AI is expected to enhance the design and creation of nano-based heterogeneous catalytic systems. Additionally, the widely used 3D printing technology can support the scaling up of manufacturing processes in large-scale applications.

Dr. Gunjan Purohit

REVOLUTIONARY PRODUCTION OF BIODIESEL FROM ACID OILS THROUGH WHOLE-CELL BIOCATALYTIC SYSTEM

Current industrial techniques for biodiesel synthesis use refined and edible grade vegetable oils and homogenous alkali for transesterification, which has an impact on fuel production economics. However, these processes have certain disadvantages, including the difficulty in recovering glycerol, the requirement to remove catalysts from the product, and the formation of alkaline effluent. The feedstock represents a significant amount of the entire cost of biodiesel production. Acid oil is a low-cost, lipid-containing non-edible substance for biodiesel manufacturing. This is produced during the acidulation of soapstock in oil refining businesses. It contains 40-80% long chain free fatty acids, 1-2% mineral acids, 5-8% free moisture, 8-10% phospholipids and sterols, 20-50% neutral glycerides, unsaponifiable oil components, and other contaminants.

Conventional alkali catalysts are not suitable for acid oil since the process produces soap due to the high free fatty acid concentration. As a result, using whole-cells as catalysts for biodiesel generation can be a less expensive approach than isolating, purifying, and immobilizing enzymes. Whole-cell biocatalytic biodiesel generation from acid oils offers a big step toward more sustainable energy alternatives. This unique technique solves environmental issues while also contributing to energy security and economic growth. With ongoing advances in biotechnology and process engineering, biocatalysis has the potential to transform the biodiesel sector, paving the way for a greener, more sustainable future. As the global demand for renewable energy rises, biocatalytic biodiesel is poised to become a pillar of the clean energy landscape, propelling progress toward a healthier planet and a brighter future.

Dr. Anirudh Sharma

THE TAPESTRY OF FESTIVALS

TEACHERS' DAY'24

Thank you, teachers!

Shaping tomorrow, today

Inspiration in action

Knowledge with love

Teachers are the architects of society, for they help build the character of students, which in turn shapes the future of the nation.

NAVRATRI' 24












या देवी सर्वभूतेषु शक्तिरूपेण संस्थिता,
नमस्तस्यै नमस्तस्यै नमस्तस्यै नमो नमः

HOLI' 24

Celebrate with Colors

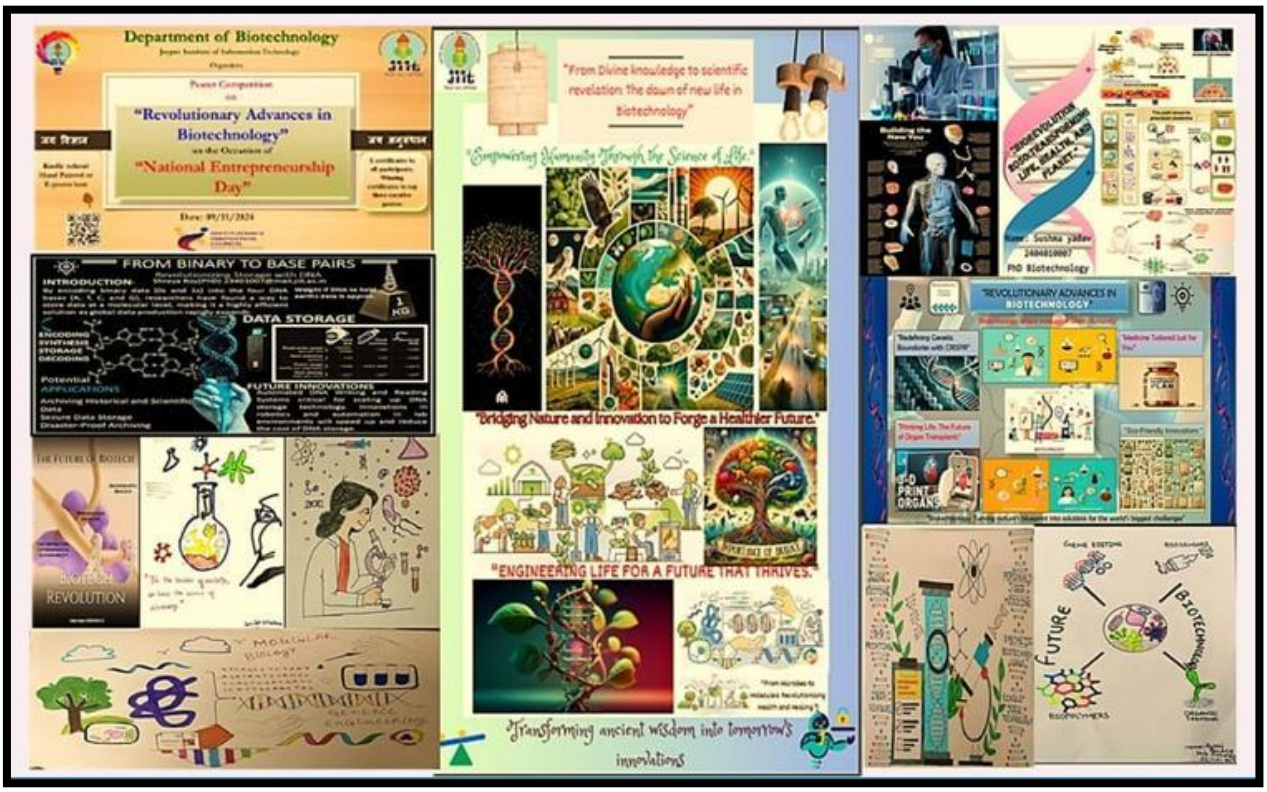
Splash into Happiness

Play, Laugh, Repeat

Joy in Every Hue

The festival of Holi teaches us to let go of negatively and embrace the colors of wisdom and joy

NATIONAL ENTREPRENEURSHIP DAY



Rise with Entrepreneurial Spirit

Entrepreneurship thrives when creativity is fueled by wisdom and action

NATIONAL POLLUTION PREVENTION DAY

Protect Earth, Prevent Pollution

The earth's health is a mirror of wisdom – let's choose prevention over regret

ALUMNI SPOTLIGHT

REUNION OF BIOTECH MINDS

Biotech Alumni Connect: March, 2024

ONCE A JIITIAN, ALWAYS A JIITIAN

Alumni Meet: December, 2024

ALUMNI SPOTLIGHT

1. **Mr. Abhinal Gupta**, Project Lead at Empirico Research and an alumnus of the B.Tech Biotechnology program (2014–2019 batch) addressed the incoming B.Tech Biotechnology batch during their counseling session on June 21, 2024.
2. **Dr. Kuldeep Nigam**, a distinguished alumnus who completed his B.Tech-M.Tech Dual Degree and later earned a Ph.D. in Biotechnology from Jaypee Institute of Information Technology, Noida-62, currently serves as a Project Research Scientist-II at the Indian Council of Medical Research (ICMR) Headquarters, New Delhi. He delivered an inspiring talk during the B.Tech Orientation Program on July 23, 2024.
3. **Mr. Iqnoor Singh**, a 2022 graduate of the B.Tech Biotechnology program, is pursuing an M.Tech in Biomedical Engineering at IIT Delhi (Centre for Biomedical Engineering). He shared his experiences and insights with the fresher batch during the B.Tech Orientation Program on July 23, 2024.
4. **Ms. Harshita**, a 2022 B.Tech Biotechnology graduate, currently working with OPTUM (United Health Group), visited the JIIT campus on August 10, 2024, for an interactive session with the NBA team.

5. Ms. Harshita, a 2024 graduate of the Integrated M.Tech in Biotechnology program, is presently employed at GREYB. She also interacted with the NBA team during her visit to the JIIT campus on August 10, 2024.

6. Dr. Shrey Kohli, a highly regarded alumnus, and Group Leader at the Institute of Laboratory Medicine, Clinical Chemistry, and Molecular Diagnostics, Leipzig University, Germany, delivered the keynote address at the workshop "Innovative Trends and Techniques in Biological Sciences" on September 23, 2024.

7. Dr. Suruchi Arora, a 2009 B.Tech Biotechnology graduate from JIIT Noida, now serving as Product Manager for Bio-Techne in Singapore, shared her expertise in a talk during the workshop "Innovative Trends and Techniques in Biological Sciences" on September 24, 2024.

8. Dr. Raman Sethi, an accomplished researcher at the Bioinformatics Institute (BII), Agency for Science, Technology, and Research (A*STAR), Singapore, delivered an engaging talk as part of the workshop "Innovative Trends and Techniques in Biological Sciences" on September 25, 2024.

9. Mr. Jatin Aggarwal, a B.Tech Biotechnology alumnus (2016–2020 batch), conducted an interactive session on November 22, 2024, to discuss emerging trends in market research. During the session, he also extended internship opportunities to M.Sc. Microbiology students.

DR. ANANTA GANJOO

BATCH: 2012-2016

Current Affiliation: Scientist, Research and Development Shroomery

Brief: I recently completed my Ph.D. in Science at the CSIR-Indian Institute of Integrative Medicine, where my research focused on developing a biotransformation process for the synthesis of hydroxamic acids using *Bacillus smithii* IIIMB2907. My doctoral work in Fermentation and Microbial Biotechnology has fuelled my passion for advancing microbial biotransformation processes to synthesize value-added compounds and enhance industrial-scale bioprocesses. Additionally, I hold an M. Tech. in Molecular Engineering & Advanced Chemical Analysis from NIT Kurukshetra, where I explored computational chemistry and molecular modeling to better understand the chemistry underlying biological processes. I also earned a B. Tech. in Biotechnology from the Jaypee Institute of Information Technology, Noida, with a major project on cloning and purifying Isocitrate Lyase 2 from *Mycobacterium tuberculosis*. I am always open to discussing collaborative opportunities, research ventures, and innovations in the fields of biotechnology, fermentation science, and product development.

A career in biotechnology: From lab to market.

Biotechnology is a multidisciplinary field that combines principles from biology, chemistry, genetics, and engineering to develop innovative approaches for manipulating biological systems for practical applications in industries like healthcare, agriculture, and environmental management. It is a science that seeks to understand and improve biological processes for the benefit of society. For me, pursuing a career in biotechnology was a journey of discovery, helping me to understand the intricate mechanisms of biological systems. While biotechnology may not always be the first career choice for most students, it offers an exciting path for those curious about how and why things work. Biotechnology is an umbrella field with numerous sub-disciplines and it provided me with a way to decode the complexities of life.

After completing my bachelor's degree, I had the option to either pursue a job or a career in research. Among my peers, some opted for an MBA, others joined companies, while most continued with their studies at the master's level. I, however, chose to start working, unsure of the direction I wanted to take. On a similar note, I would like to tell all final-year students: It's okay not to know exactly what you want to do, as long as you are willing to learn. Within six months of working, I realized that this path wasn't for me, so I decided to continue my studies and give entrance exams. It's essential to keep an open mind and learn as you go. Biotechnology offers flexibility, allowing you to branch into various fields like microbiology, biochemistry, molecular biology, biomedical engineering, and bioinformatics, to name a few. After qualifying for GATE, I chose to study Molecular Engineering and Advanced Chemical Analysis at NIT Kurukshetra, where I gained expertise in chemical synthesis, characterization techniques, and computational chemistry. This experience reaffirmed that with a strong foundational knowledge, I could explore any direction I wished. Further, starting research career felt like a natural next step for me.

"Success is failing 99 percent of the time and never giving up." – Dr. Ananta Ganjoo

Currently, I am a scientist in the R&D division at Shroomery, one of the largest gourmet and exotic mushroom growers in India. My role involves developing processes for extracting bioactive compounds from medicinal mushrooms, as well as their estimation and validation. This requires expertise in microbiology to maintain fungal cultures, solid-state fermentation to grow mushrooms, and biochemistry to understand the bioactive compounds. I am also involved in downstream processing for product development. At Shroomery, we are collaborating with ICAR-Indian Agricultural Research Institute, Pusa, to develop and launch mycoceutical-based products with in vitro validations, paving the way for increased private-public partnerships in the field. Unlike my previous research, which was limited to proof-of-concept work, this opportunity allows me to create consumable products that can make a real impact. From biotechnology, I transitioned to biochemistry and microbiology throughout my career, diving deeper into the microbial world that exists within our ecosystems. Whether it's exploring bacterial species that can be used to synthesize potential anti-cancer drugs (as I did in my doctoral research) or studying fungal strains capable of producing medicinal compounds, my curiosity about biological systems has always driven me. I am fascinated by how microorganisms interact, how external factors influence their growth, and how they produce valuable substances.

For students aspiring to pursue biotechnology or those currently studying it: you can achieve anything you set your mind to, as long as you remain open to learning and embrace a deep understanding of the subject.

As a closing thought, I would like to share a quote from one of my favorite books:

"We must do what we love. Do the kinds of things that come from the heart. When you do, you won't be dissatisfied, you won't be envious, and you won't be longing for somebody else's things. On the contrary, you'll be overwhelmed with what comes back."
– Morrie Schwartz, *Tuesdays with Morrie*

JIIT MEMORIES

Contact:
ananta@shroomery.in
anantaganjoo94@gmail.com

Dr. Ananta Ganjoo ; **Batch:** 2012-2016

DR. SAMIKSHA KUKAL AASI

BATCH: 2011-20165

Current Affiliation: Kusuma School of Biological Sciences, Indian Institute of Technology Delhi

With immense pride and gratitude, I can say that I am a post-doctoral researcher (Joined in August 2023) at Kusuma School of Biological Science (KSBS), IIT Delhi working with Prof. Saran Kumar. With the help of cutting-edge spatial transcriptomic technology, I am exploring the influence of unequal vascular supply in glioblastoma on the cellular states and metabolic zonation. I am also involved in investigating how an antibacterial drug can be repurposed for use as an anticancer agent in GBM.

I graduated as a gold-medalist in the field of Biotechnology from Jaypee Institute of Technology, Noida, in 2015. I then pursued my PhD from CSIR-IGIB after qualifying the reputed DBT-JRF fellowship under category 1. I also qualified GATE biotechnology in 2014 with an All-India rank of 52. During my PhD, I worked on understanding the expression and regulation of drug metabolizing enzymes and drug transporters towards their contribution to altered drug response in neurological disorders (Antiepileptic drug resistance). We utilized *in vitro* approach (human brain endothelial cells) along with cell and molecular biology to understand molecular mechanism for antiepileptic drug-mediated regulation of efflux transporters.

Looking back 13 years, it makes me feel wonderful for what I am today after passing out from JIIT. I had multiple choices of colleges to begin my graduation but I selected JIIT, Noida looking at the professionalism and discipline of the college and I realize it was a well-made decision. While at college, I never realized that I am going through disciplined training that would make it easy for me when I face the world that needs hard work, articulation-skills, hands-on skills and depth. This college not only taught me to do well in academics but also to perform good under pressure and to work in a team. I consider myself fortunate to have had such wonderful mentors and supervisors during the tenure. I used to enjoy attending classes and gaining knowledge.

PhD made me a different personality, teaching me how to live through ambiguity and work with resilience to get to results. Though it became a mentally and emotionally challenging experience for me, it nourished my professional and personal growth. As years passed by, I figured out that resilience pays, and you just need to hang-on. JIIT had planted those seeds, and they were growing into a tree, making me a tougher person. The journey continued and I was again at another threshold to choose research vs Industry. And again, research made its way and landed me to IITD.

All the experience and skills which I gained came as an asset to me in shaping me as a self-driven researcher, with strong organizational and multi-tasking skills. With over 20 publications in international journals, I can proudly say that I contributed to the world of research, even if it is drop in the ocean; and miles to go before I sleep.

DR. SAMIKSHA KUKAL AASI

ASPIRING MINDS PURSUING EXCELLENCE IN HIGHER EDUCATION (2023-2024)

S. No	Name of Student	Program graduated from	Name of institution joined	Name of program admitted to
1	Aditi Kaushik (19101009)	B. Tech Biotechnology	Heidelberg University, Germany	Degree of Master of Science, Molecular systems science and engineering
2	Akul Goswami (20101013)	B. Tech Biotechnology	University of Groningen, Netherlands	Degree of Master of Science, Biomolecular Sciences
3	Khushi Raj Mittal (19101045)	B. Tech Biotechnology	Georgia institute of technology, Atlanta	Degree of Master of Science, Bioinformatics
4	Dinky Malhotra (19801012)	Integrated MTech (Biotechnology)	Hannover Biomedical Research School (HBRS), Germany	PhD Scholar
5	Iqnoor Singh (18101007)	B. Tech Biotechnology	IIT Delhi (Centre for Biomedical Engineering)	M. Tech in Biomedical Engineering
6	Devatman Jauhari (20101026)	B. Tech Biotechnology	BITS PILANI (Goa campus)	Master of Engineering in Biotechnology
7	Divyansh Senger (20101034)	B. Tech Biotechnology	Dublin city university, Ireland	M.Sc in Bioprocess engineering
8	Nikunj Gyan Prakash (20101010)	B. Tech Biotechnology	International space University, Strasbourg, France	Master of space studies program
9	Aryan Raina (20101048)	B. Tech Biotechnology	Symbiosis Centre of Information Technology	MBA (Data Science and Data Analytics)

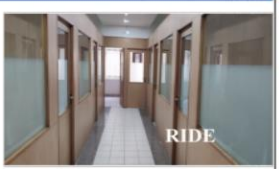
BIOTECH HORIZONS

BIONEST FACILITY

START-UP CULTURE at JIIT

INSPIRATION:

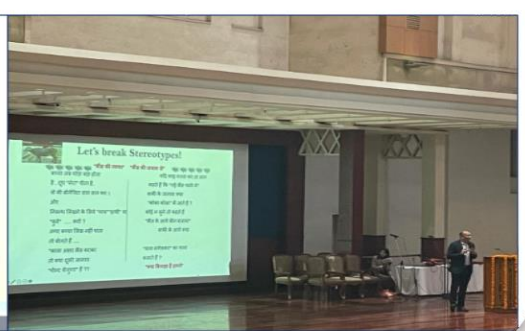
"With the declaration of new decade (2021-2031) as the 'Innovation Decade', I beseech my honourable colleagues from educational field to support and plan how Jaypee Education System can have a strong R & D and innovation campaign. It will require a change in mindset besides resolve to fight for a respectable place in the country's unfolding technological spectrum." - Hon. Chancellor, Sh. Manoj Gaur Ji



BIRAC's BioNEST

Bio-Incubation Centre at Jaypee Institute of Information Technology

Dr Rajesh S Gokhale, Secretary DBT, Govt of India, at JIIT NOIDA during the inauguration ceremony of ICABB-2024 announced recommendation of Bioincubation Centre at JIIT



The bio-incubator at Jaypee Institute of Information Technology, Noida, aims to support entrepreneurs and researchers in developing innovative tools in environment and medical technology for sustainable development. It provides collaborative space, networking opportunities, and state-of-the-art equipment like GCMS, Fluorescent Inverted Microscopes, and cell culture facilities to foster innovation and commercialization.

IGNITING YOUNG MINDS: BIOTECH TRAINING FOR YOUNG LEARNERS

Educational tour of Sanskriti School Students at Department of Biotechnology, JIIT Noida on 24th January 2024

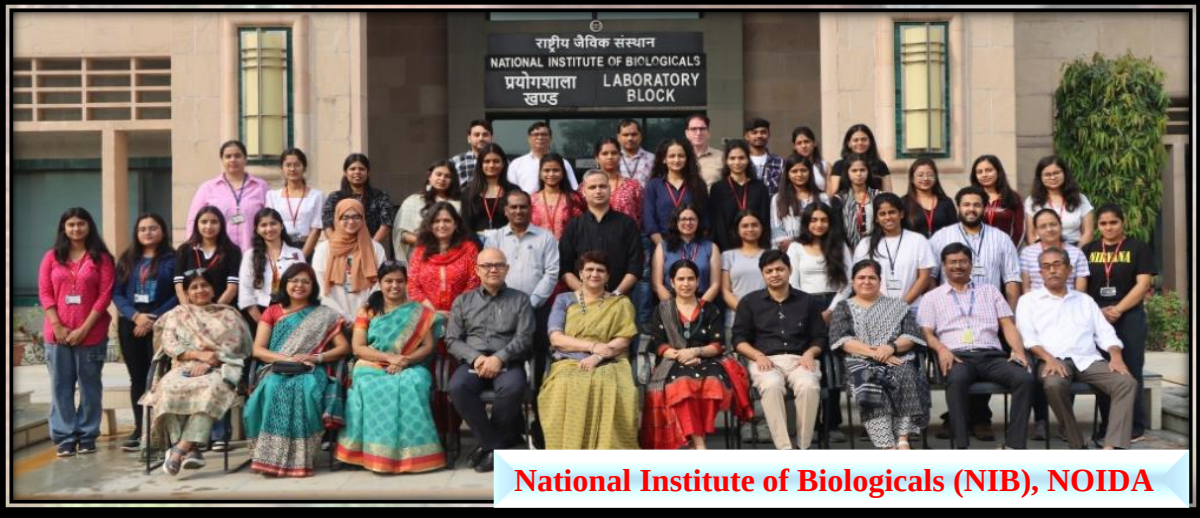
Training to class 10th Students at Department of Biotechnology, August 2024

Educational tour of St. Thomas School Students at Department of Biotechnology, JIIT Noida on 6th February 2024

JIIT's biotech lab opened its doors to young minds, offering an immersive hands-on experience. This initiative ignited curiosity, fueled innovation, and bridged the gap between classroom concepts and real-world science, inspiring the young minds.

BRIDGING ACADEMIA AND INDUSTRY: JIIT BIOTECH'S FIELD JOURNEY

Agilent Technologies International Pvt Ltd



National Institute of Biologicals (NIB), NOIDA

India Institute of Technology, Delhi

Department Hosts Industrial Visits to Give Students a Deeper Understanding of Industry Expectations

FROM SCREEN TO CAMPUS

"Triumphant Completion of Ph.D. Defense in Offline Mode"

PHD AWARDED IN 2024

Name	Research Topic	Date of Award
Radhika Bansal	Evaluation of Heavy Metals in Raw Herbs and Bioremediation of Hexavalent Chromium	13 March 2024
Kumkum Sharma	Therapeutic Potential of Aged Garlic in Diabetic Cardiomyopathy	12 April 2024
Preeti Thakur	Isolation, Characterization of Nitrate Remediating Bacteria and Phylogenomics of Nitrogen Metabolism Genes	24 April 2024
Surbhi Sharma	Nano-based drug delivery systems for the drug used in the treatment of neuropsycological disorders	29 June 2024
Shivani Singhal	Ayurvedic herbal formulations in modulating gut microbiota associated with diabetic cardiomyopathy	24 August 2024
Geeta Swargiary	Anticancerous herbs as mitocans	26 October 2024
Pallavi Kumari	Drug Repurposing for cancer therapeutics	18 October 2024
Sonia Sharma	Isolation,screening, characterization and application of endophytes from Amorphophallus Paeoniifolius	7 November 2024
Megha Gautam	Identification and characterization of drug combination for Glioblastoma Multiforme	7 November 2024
Archana Kumari	Employing competent microbes for remediation of toxic organic substances	28 December 2024
Sonam Shaheen	Study developing PGPM consortia formulation and remediation of organophosphate pesticides	Final defense (21 November 2024)

BIOEXHIBITION-2024

A platform for final-year B.Tech students to unleash innovation, blending creativity, technical prowess, and sustainable solutions of real life challenges.

TECHNICAL STAFF TRAINING

Inverted Microscope Training

ELISA Training

3 D printer Training

Real time PCR Training

Department aims at continuous enhancement of knowledge and technical skills of Biotechnology laboratory staff

CONVERSATION WITH A VISIONARY LEADER

"Honored to welcome Former Cabinet Secretary, Shri. Rajiv Gauba Ji, on August 31, 2024. His unwavering commitment to national progress fuels our ambition as we push the boundaries of Biotechnology."

BIOTECHNOLOGY DEPARTMENT IN SPOTLIGHT

Rush Of Blood! Saving Lives Via Drones

GAME-CHANGER: ICMR Tests Transportation Of Supplies Using Unmanned Aerial Vehicles

Anuja.Jaiswal@timesgroup.com

New Delhi: The use of drones to deliver life-saving blood supplies to people in remote and inaccessible areas could be a "gamechanger" in emergency situations, according to the preliminary findings of a study conducted by the Indian Council of Medical Research (ICMR).

The experiments, held in May this year, involved three institutes — Delhi's Lady Hardinge Medical College (LHMC), Greater Noida's Government Institute of Medical Sciences (GIMS) and Noida's Jaypee Institute of Information Technology (JIIT).

ICMR flew several units of whole blood samples and blood components to far-off places and difficult geographical areas for multiple days using a battery-operated drone. The study aimed to check the feasibility of drones for transferring blood bags and components as compared to conventional transportation methods, i.e., via road.

The study showed positive results, according to ICMR. Dr Sumit Aggarwal, scientist and programme officer, division of epidemiology and communicable diseases, ICMR, said the preliminary findings showed that throughout the drone operation, cell integrity remained intact and temperature required for blood and blood components was maintained. Besides, neither visible haemolysis nor clotting was observed during the trial.

The drone was flown for 30 minutes every time, at a height varying from 20 to 100 metres. The maximum weight carried was 4kg

Hence, he said, drones were found to be safer and less time-consuming compared to conventional methods of transportation of blood bags. Dr Aggarwal said during the trial, the quality of blood was checked with change of speed, height, temperature, pressure drop and mechanical jerks (vibration) while the drone was rotating.

At least 30 units each of whole blood, fresh frozen plasma, platelets and red blood cells from two different institutes — LHMC and GIMS — were sent to JIIT on several days in vans where relabelling was done. Thereafter, about 50% of the relabelled samples were flown via the drone at different times on the JIIT campus to check the blood quality while the remaining were sent through the van.

The drone was flown for 30 minutes every time, at a height varying from 20 to 100 metres. The maximum weight carried was 4kg.

The project will help establish a delivery method of life-saving blood and blood components during natural calamities and disasters and to hard-to-reach terrains with poor blood bank facilities, Dr Aggarwal said, adding the study will help develop SOPs for wider applicability and use of drones for the purpose.

Blood and blood components are essential medical requirements, especially in medical emergencies and accidents. They are often difficult to procure timely in hard-to-access regions. Also, no study has been conducted in India so far to explore their delivery using drones.

Earlier, Dr Rajiv Bahl, director general of ICMR, had said it has been a pioneer in using drones for healthcare purposes and conducted the delivery of medical supplies and vaccines in remote areas of Manipur and Nagaland.

Participants from national and international industrial houses posing during an International Conference held at Noida on Thursday.

JIIT hosts 7th International Conference on ICABB 2024

Excelsior Correspondent

NOIDA, Feb 1: The 7th International Conference on Advances in Biotechnology and Biosciences (ICABB), hosted by The Department of Biotechnology, Jaypee Institute of Information Technology (JIIT), Noida was held here today.

The conference was sponsored by Department of BioTechnology, Govt. of India (DBT), and Council of Science and Technology, Uttar Pradesh (CSTUP) and was inaugurated by Rajesh S. Gokhale, Secretary for the Department of Biotechnology and the Department of Science & Technology, Government of India, emphasizing the nation's pivotal position in this dynamic landscape.

Conference Chairperson and Head of the Department, Prof. Pammi Gauba, Convenors Prof. Indira P Sarethy and Dr. Smriti Gaur highlighted the key aspects of the annual symposium.

This year, the conference's spotlight shines on the theme "Food & Microbial Biotechnology: Insights and Innovations."

Esteemed speakers at ICABB 2024 include experts from renowned national institutions and distinguished international universities, such as King's College, London, UK and The University of Tennessee at Chattanooga, US.

Moreover, the conference is privileged to host industry luminaries, with representatives from prominent industries like Yakult Danone India Pvt. Ltd., Wells Therapeutics Inc., US, and GeneOne Life Science, Inc., US.

The speakers bring a wealth of knowledge and experience, promising a diverse and enriching discourse at the intersection of Food & Microbial Biotechnology.

Hindustan Times | CO

ICABB 2024 explores the confluence of Food & Microbial Biotechnology

On Jan 31, The Department of Biotechnology, JIIT, Noida hosted the 7th International Conference on Advances in Biotechnology and Biosciences (ICABB), sponsored by DBT, Govt of India, and CSTUP. Conference Chairperson and Head of the Department, Prof Pammi Gauba, Convenors Prof Indira P Sarethy and Dr Smriti Gaur highlighted the key aspects of the annual symposium, gathering a diverse array of participants from around the globe to engage in dialogues on scientific ideas and research. This year, the conference's spotlight was on the theme of "Food & Microbial Biotechnology: Insights and Innovations." The theme was in sync with the growth of the food and beverage market.

डीएमसी एंड एच वार्षिक दीक्षांत समारोह 2024: लिवर ट्रांसप्लांट यूनिट का उत्सव और शुभारंभ

लुधियाना/यूटर्न/26 अक्टूबर। डीएमसी एंड एच ने आज एमबीबीएस बैच 2018 के लिए अपना प्रतिष्ठित दीक्षांत समारोह आयोजित किया, जिसमें अपने उत्कृष्ट स्नातकों को 73 एमबीबीएस डिग्री, 71 प्रमाण पत्र और 15 पदक प्रदान

जेपी इंस्टिट्यूट में इनोवेशन डिजाइन पर चर्चा

एनबीटी न्यूज, नोएडा : सेक्टर-62 स्थित जेपी इंस्टिट्यूट ऑफ इंफॉर्मेशन एंड टेक्नॉलजी में 29 जनवरी से 2 फरवरी तक इनोवेशन डिजाइन एंड एंटरप्रेन्योरशिप (आईडीई) पर 5 दिवसीय बूट कैंप कार्यक्रम शुरू हुआ है। अखिल भारतीय तकनीकी शिक्षा परिषद (एआईसीटीई) और शिक्षा मंत्रालय के इनोवेशन सेल (एमआईसी) ने इसे आयोजित किया है। एआईसीटीई के चेयरमैन प्रोफेसर टी.जी. सीताराम और निजी हॉस्पिटल के चेयरमैन डॉ. डीके गुप्ता ने सोमवार को इस कार्यक्रम का उद्घाटन किया।

The department's groundbreaking initiatives have acquired significant recognition in prime newspapers, showcasing our unwavering commitment to excellence and innovation. These features emphasize the impactful effort and make meaningful contributions to Biotechnology. The recognition inspires us to continue for greater milestones and deliver transformative outcomes.

BIOTECH UNLEASHED

1. Indian scientists developed novel gene therapy treatment for haemophilia.

https://www.thehindu.com/sci-tech/health/indian-scientists-develop-novel-gene-therapy-treatment-for-haemophilia/article68973897.ece

2. A mutation makes plant roots more welcoming to beneficial microbes.

https://www.nature.com/articles/d41586-025-00092-5

3. 2024 marks warmest year on record: Global average temperature exceeds 1.5°C above pre-industrial levels.

https://www.innovationnewsnetwork.com/2024-marks-warmest-year-on-record-global-average-temperature-exceeds-1-5c-above-pre-industrial-levels/54364/

4. AIMPLAS has announced the launch of the Buddie Pack project funded by Horizon Europe, aiming to implement a circular system for the large-scale deployment of reusable plastic packaging.

https://www.innovationnewsnetwork.com/new-project-to-implement-circular-system-for-reusable-plastic-packaging/54243/

5. From wastewater to wound care: How phages are found, harvested, and used.

https://www.innovationnewsnetwork.com/from-wastewater-to-wound-care-how-phages-are-found-harvested-and-used/54640/

CROSSWORD SOLUTION: VOL III

Across

4- Amphitrichous

5- Explant

8- Prophage

9- Conjugative

Down

1- Gametophyte

2- Bioremediation

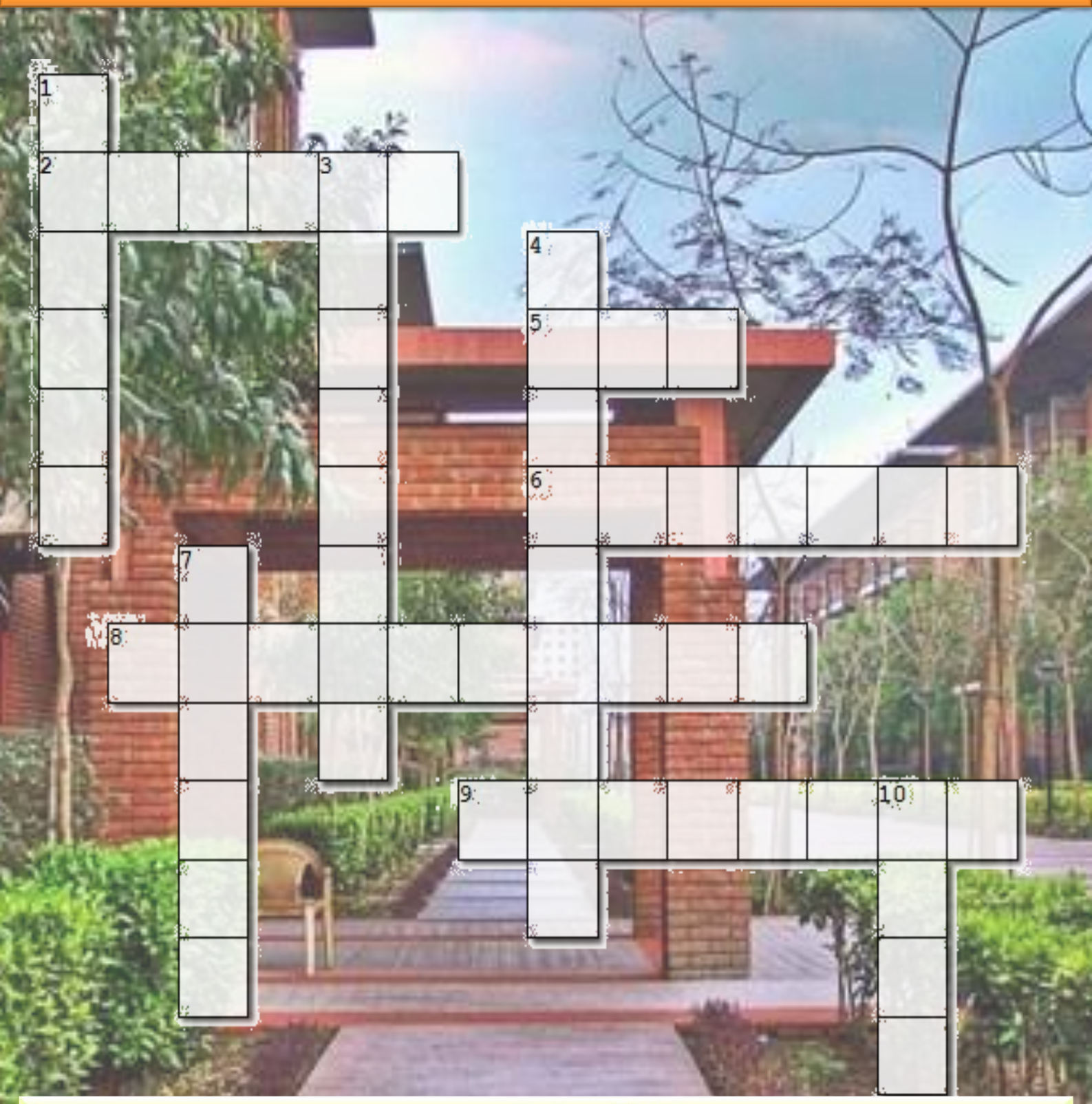
3- Virus

6- Holozoic

7- Prophase 1

10- Anemia

NEW CROSSWORD: 1



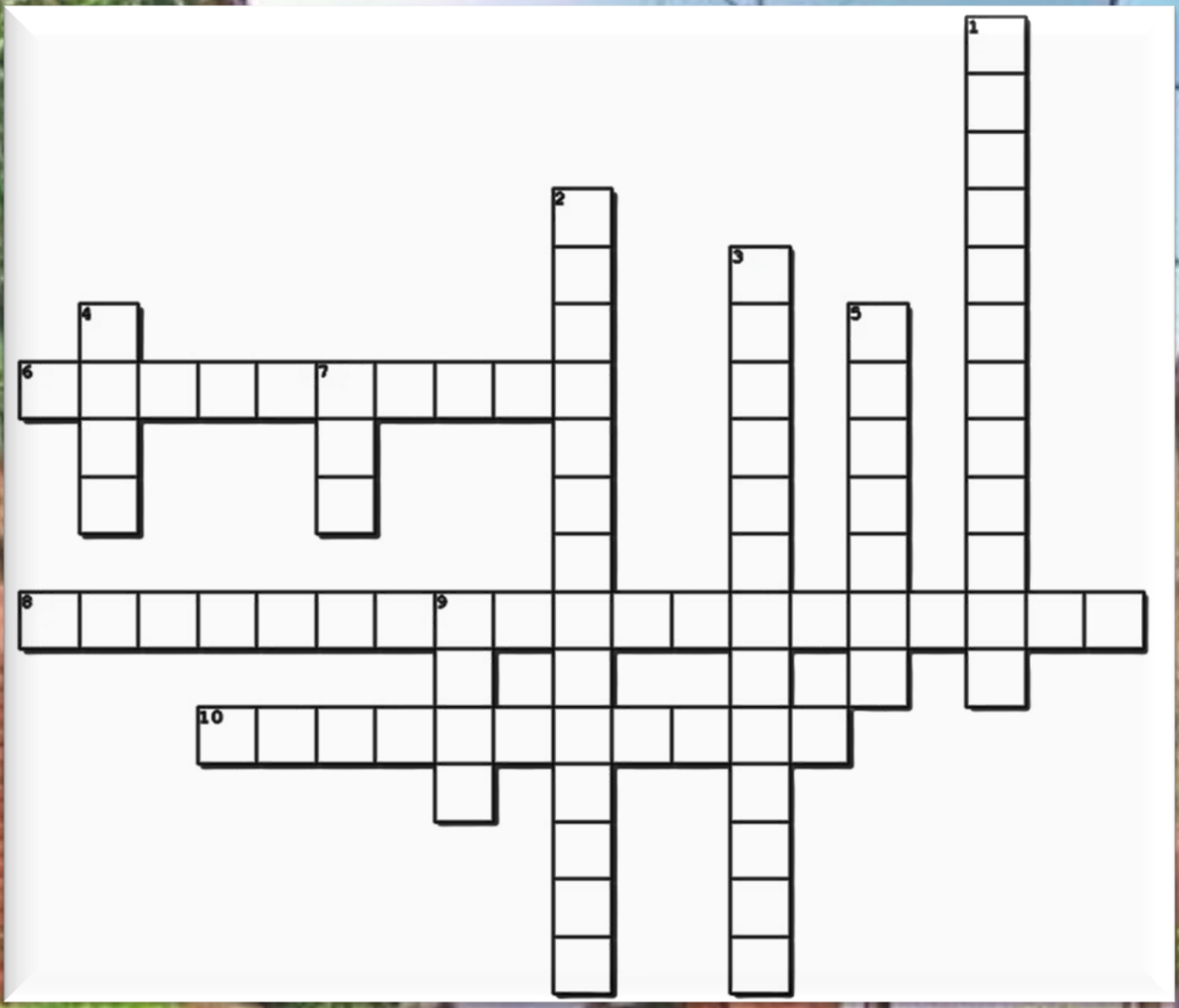
Across

2. Proteins that speed up chemical reactions
5. Technique to amplify DNA segments
6. Small, circular DNA molecules found in bacteria
8. Carries oxygen in the blood
9. Cell structures where proteins are made

Down

1. Organisms used in genetic research
3. Change in the DNA sequence
4. Process of programmed cell death
7. Heredity material in organisms
10. Genetic material for protein synthesis

NEW CROSSWORD: 2



Across

6. A genetic sequence that can move to different positions within the genome

8. Technique for separating DNA fragments by size using an electric field

10. Process by which cells produce proteins from mRNA

Down

1. Protein complex that can cut DNA at specific sequences

2. Process of introducing foreign DNA into a host cell

3. Application of biological systems in technology and industry

4. Type of RNA that carries genetic information from DNA to the ribosome

5. Genetically engineered organism with DNA from a different species

7. Technique used to amplify small segments of DNA

9. Protein used by bacteria as a defense against viruses

PATHWAYS TO SUCCESS

GATE

The Graduate Aptitude Test in Engineering (GATE) is a national-level exam in India that assesses undergraduate knowledge in engineering and science. It is essential for those seeking postgraduate studies or jobs in public sector undertakings (PSUs).

Eligibility - Candidates eligible to appear for GATE 2025 include those currently studying in the 3rd year or higher of any undergraduate degree program, as well as those who have completed a government-approved degree in Engineering, Technology, Architecture, Science, Commerce, Arts, or Humanities.

Registration	28 Aug–26 Sept 2024
Admit card available	2 Jan 2025
Exam :	1, 2, 15, 16 Feb 2025
Results available :	19 Mar 2025

CSIR-UGC NET, 2025

The CSIR-UGC NET is a national exam in India that determines eligibility for lectureship and Junior Research Fellowship (JRF) in universities. Focused on Life Sciences, Physical Sciences, Chemical Sciences, Mathematical Sciences, and Earth Sciences, the exam is conducted twice a year.It serves as a gateway for aspiring researchers and academicians to advance in their academic careers.

Eligibility - Candidates must have a master's degree or its equivalent in the relevant subject with a minimum of 55% marks (50% for SC/ST/OBC-NCL/PwD candidates).

Registration	Last week of December 2024
Test centre allotment	June 2025
Admit card available	15 days prior to the exam ie June 2025
Exam	June 2025
Results available	July 2025 (Expected)

DBT-JRF BET, 2025

The DBT JRF Biotechnology Eligibility Test (BET) 2025, conducted by the Department of Biotechnology (DBT) through the Regional Centre for Biotechnology (RCB) in Faridabad, is for Indian citizens seeking the DBT-Junior Research Fellowship (DBT-JRF) to pursue research in biotechnology.

Eligibility- Candidates with a Bachelor's degree (B.E., B.Tech., M.B.B.S.) or a Master's degree (M.Sc., M.Tech., M.VSc., M.Pharm., Integrated M.Sc., M.Tech.) in Biotechnology, Life Sciences, or allied areas are eligible.

Online Registration Start	2nd week of February 2025
Online Registration Close	2nd week of March 2025
Correction Window Open	2nd week of March 2025
BET 2025	4th week of April 2025

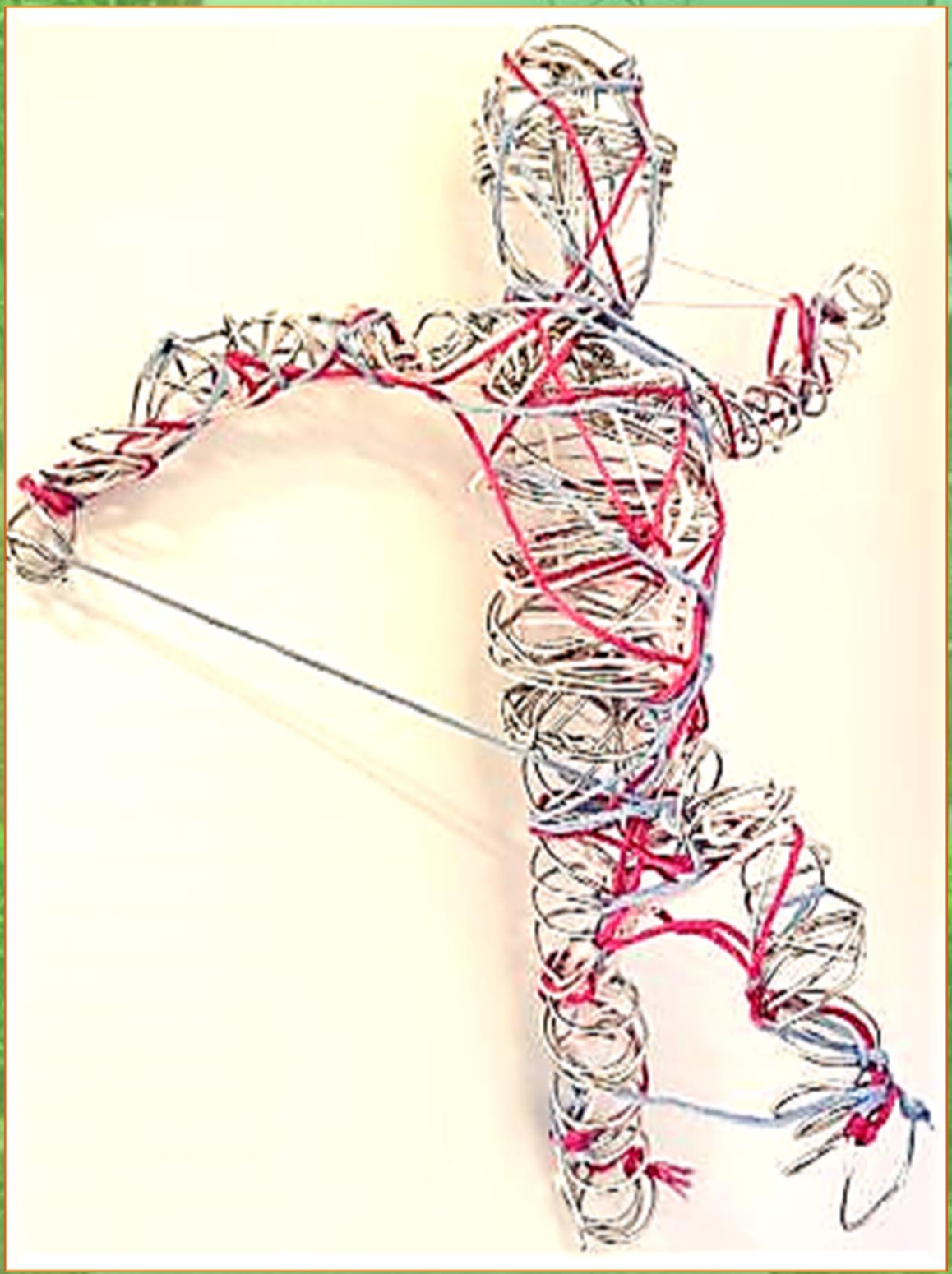
IIT-JAM, 2025

The IIT JAM (Joint Admission Test for M.Sc.) is an entrance exam for admission to postgraduate science programs at IITs and IISc. It evaluates candidates in subjects like Physics, Chemistry, Mathematics, and Biotechnology, providing opportunities for advanced studies and research.

Eligibility- Candidates should possess bachelor's degree in any discipline with minimum 55% or 5.5 CGPA for General/OBC-NCL candidates and 50% marks or 5.0 CGPA for ST/SC/10.

Applications Opens	3rd September, 2024 to 1st October, 2024
Availability of Admit Cards	Early January, 2025
Dateof Examination	2nd February 2025
Announcement of the Results	16th March 2025

ABOUT THE KOSHIKA THEME :THREADS OF LIFE:



VOLUME IV

VOLUME IV: THREADS OF LIFE

The topic "*Threads of Life*" for the Volume IV of Koshika reflects the interrelated contributions that propel the department's advancements and achievements. Each achievement, discovery, and personal narrative is a distinct thread sewn into the department's developing fabric. Faculty, students, and researchers all play important roles in this tapestry, contributing through research, instruction, and innovation.

Just as biological life is made up of intricate molecular threads of DNA, the department's growth is based on various strands of knowledge, collaboration, and achievement.

The newsletter is a venue for celebrating accomplishments, sharing insights, and connecting past, current, and future activities in the biotech community. It encourages teamwork, mentorship, and multidisciplinary collaboration, all of which develop the department. By embracing this concept, the newsletter fosters a sense of unity and purpose, highlighting how each contribution—big or small—helps weave the rich story of the department's journey. Moreover, this theme reflects on the poignant reality that loss is an integral part of life.

Just as threads can fray or be cut, so too can lives be altered by loss. Each thread that represents a contribution or achievement is interspersed with those that symbolize absence—reminding us of colleagues and mentors who have passed away. Their legacies continue to influence our work and inspire us to forge ahead. This duality—celebrating achievements while acknowledging loss—enriches interrelated narrative. It illustrates that every thread in our tapestry carries its own story; some vibrant with success while others muted by grief. Together, they create a complete picture of our community's journey through triumphs and tribulations.

In essence, "*Threads of Life*" encapsulates not only our collective achievements but also the enduring connections we maintain with those we have lost. The newsletter ultimately serves to honor these threads, weaving them into a cohesive narrative that reflects both our resilience and our commitment to progress within the biotech field.

EDITORIAL TEAM- VOL IV

FACULTY TEAM

Prof. Pammi Gauba
(HoD, Biotechnology)

Prof. Vibha Rani
(Chief Editor)

Dr. Vibha Gupta

Dr. Sonam Chawla

Dr. Ankisha Vijay

Dr. Pooja Choudhary

STUDENT TEAM

Ph.D: *Ankit Kumar, Ritika, Sushma,*
M. Tech: *Akansha Mittal , Jatin Gupta*
B. Tech: *Kinjal, Dhwani Gupta, Khyati, Shravvya, Navya, Shreeya*

We hope you enjoyed our newsletter!
Please share your feedback with us at
koshika.newsletter@gmail.com
We'd love to hear from you

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY

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विद्या तत्व ज्योतिसम: