

DEPARTMENT OF ZOOLOGY

SUBJECT SOCIETY – SYNAPSES

July – Dec 2024

Convenor, Synapses: Dr. Renu Solanki

Teacher In-Charge: Dr. Shailly Anand

11th July 2024- 18th July, 2024: One week Hands-on-Workshop on “**Advanced Tools in Biotechnology**” was organized for 29 undergraduate students of biological sciences in association with Science Foundation & DBT Star College Program under which the following 9 experiments and 4 lectures were covered:

- **Experiment 1:** Blue-white screening
- **Experiment 2:** Isolation and inoculation of the recombinant clone in culture media
- **Experiment 3:** Preparation of Glycerol Stock of the recombinant clone for long term storage
- **Experiment 4:** Isolation of plasmid DNA from the recombinant clone
- **Experiment 5:** Agarose Gel Electrophoresis for visualization of the recombinant clone DNA
- **Experiment 6:** Polymerase Chain Reaction (PCR for the presence of gene of interest in the recombinant clone)
- **Experiment 7:** Agarose Gel Electrophoresis for visualization of amplified product
- **Experiment 8:** Insert Release from the recombinant clone
- **Experiment 9:** Visualization of Insert Release by Agarose Gel Electrophoresis
- **Lecture Session 1:** Transformation Techniques & Measurement of Efficiency of Transformation Dr. Guddu Kumar Fish Biology Laboratory, Department of Zoology, UoD
- **Lecture Session 2:** An overview of different methods of storage of bacterial cultures, Dr. Anjali Gut Microbiome Laboratory, Department of Zoology, UoD
- **Lecture Session 3:** Check points during cloning by Recombinant DNA Technology – Why's & How's?, Dr. Anjali Gut Microbiome Lab., Dept. of Zoology, UoD
- **Lecture Session 4:** Fundamentals of Molecular Scissors, Dr. Rohit Jamwal, Gut Microbiome Laboratory, Department of Zoology, UoD

18th July 2024: An Intercollege Poster Presentation Competition was organized in coordination with Science Foundation and DBT Star College Scheme on the theme “**Biotechnology and its applications**” during which 10 teams participated. The topics received for the poster presentations included the following:

- “Illuminating Gene Expression”
- “The BRCA gene and cancer risk: What you need to know!”
- “RT-PCR: Amplifying Answers from RNA”
- “Revolutionising Industry : Role of RDTs in antibiotics”
- “Electrifying insights: unveiling DNA strands through gel electrophoresis”

- “Diving into genetics: the captivating exploration of DNA sequencing”
- “Unlocking the Secrets of DNA: Tailored Isolation protocols for diverse organisms”
- “DNA SEQUENCING : Unveiling the code of life”
- “Harnessing the Power of CRISPR/Cas”
- “Making fabricated fluid using rHBOCs”

The judgement of the posters was done by Dr. Shailly Anand, Dr. Renu Solanki, Dr. Guddu Kumar, Dr. Rohit Jamwal.

29th August 2024: A Welcome Event to foster meaningful interactions between newly joined students, faculty members, senior students, and the Synapses (subject society) student council. This gathering, held on 29/08/2024, aimed to bridge the gap between different levels of academic experience, promote peer learning, and create an environment that supports both academic and personal growth. This peer-to-peer interaction was a testament to the department's commitment to holistic education. It set the tone for a collegial atmosphere that is poised to support the academic and emotional journey of every student. By prioritizing inclusivity, mutual respect, and the free exchange of ideas, the department ensured that every new student would feel not only welcomed but empowered as they begin their academic journey. (*Coordinator: Dr. Shailly Anand*)

5th September 2024: AARAMBH’24, (Deeksharambh Programme): The Department of Zoology held its formal **Induction Program** led by Dr. Shailly Anand, the Teacher in-Charge. She provided an overview of the department, established in 1990, and its evolution. This orientation session meticulously designed to familiarize the new students with the academic environment, faculty members, and resources available to them. The room was filled with eager faces, both apprehensive and excited about the new journey that lay ahead. The orientation laid out a roadmap for academic success, promoting an inclusive and supportive environment where students were encouraged to interact freely and engage with the experienced faculty members present. This session instilled a sense of belonging, bridging the gap between the new students and the institution’s vibrant culture. (*Coordinator: Dr. Shailly Anand*)

5th September 2024: The Teacher’s day was celebrated by the students and faculty members of the Department. The significance of Teacher’s Day was emphasized, as heartfelt gratitude and appreciation for the teachers were woven into every aspect of the programme. The atmosphere was one of mutual respect, joy, and celebration of the invaluable contributions made by teachers to the students’ lives. The spirit of camaraderie and light heartedness was perfectly captured in the games segment, where students and teachers alike participated with enthusiasm.

12th September 2024: An Educational Visit to Global Bio-India 2024, an annual mega international congregation of biotechnology stakeholders, including international bodies, regulatory bodies, central and state ministries, SMEs, large industries, bioclusters, research institutes, investors, and the startup ecosystem was organized under the aegis of DBT Star College Program & Deeksharambh Student Induction Program on 12th September 2024. The event was structured by Biotechnology Industry Research Assistance Council (BIRAC), a Public Sector Undertaking under the Department of Biotechnology (DBT) - Ministry of Science and Technology, Government of India to showcase India’s Biotech growth and opportunities to the world. More

than 8000 delegates from round the world had registered for the event. A total of 159 students of Zoology, Botany and Life Sciences participated in the events held of the program. *(Coordinators: Dr. Shailly Anand)*

17th – 18th September 2024: In commemoration of **International Microorganism Day**, the department orchestrated **Microsphere 4.0**, a two-day confluence that brilliantly captured the essence of microbial diversity, research, and innovation. This remarkable event, held under the aegis of Synapses, DBT Star College Program, and the Science Foundation, in association with the Indian Network for Soil Contamination Research (INSCR), and bolstered by its academic-industry collaborator PhiXgen Pvt. Ltd., set a precedent for scientific gatherings of its kind. Under the global umbrella of the International Microbiology Literacy Initiative - South Asian Centre (IMiLI-SAC), the event drew participation and collaboration from a network of esteemed Swami Shraddhanand College, Miranda House, Sri Guru Tegh Bahadur Khalsa College, Ramjas College, Kirori Mal College, Gargi College, Maitreyi College, Shivaji College, Deshbandhu College, and Bhaskaracharya College of Applied Sciences. *(Coordinators: Dr. Shailly Anand & Dr. Renu Solanki)*

The following intercollege competitions were organized:

- **Micro-Maestros (Personify the Microbes):** This flagship event invited participants to personify microbes, transforming these invisible life forms into vivid characters with dynamic personalities and crucial roles in sustaining ecosystems. The presentations embodied creativity at its zenith, as students ingeniously gave voice to bacteria, viruses, fungi, and protozoa, all while shedding light on their importance in health, agriculture, and industry. This innovative competition, students creatively personified various microorganisms, showcasing their vital roles in ecosystems
- **Slogan writing competition:** In this event, participants wielded the power of words, crafting slogans that captured the ubiquitous yet enigmatic nature of microorganisms. The competition was a melting pot of ideas, each slogan a reflection of the participant's perspective on the microbial world's profound impact on life and the environment.
- **Microquiz:** The *MicroQuiz* was an intellectual battlefield that tested the breadth and depth of microbiological knowledge among undergraduate and postgraduate students. The questions spanned an impressive array of topics, including microbial ecology, genetic engineering, and the application of microbes in biotechnology.

18th September 2024: Memorandum of Understanding (MoU) between Deen Dayal Upadhyaya College & PhiXgen Pvt. Ltd was signed on 18th September, 2024 under the Internal Quality Assurance Cell for a tenure of 5 years. *((Coordinators: Dr. Shailly Anand & Dr. Renu Solanki)*

18th September 2024: Invited talk by Prof. Rup Lal (NASI Senior Scientist, Acharya Narendra Dev College, University of Delhi), Co-Chair IMiLi-ROND, President INSCR. The topic of his talk was “Fostering India’s Prosperity (Viksit Bharat Vision) through Health, Environment, and Peace”. In his visionary discourse, Dr. Lal emphasized the indispensable role microorganisms play in securing India’s future prosperity. Drawing on cutting-edge research and his extensive expertise, he elaborated on how microbes are key to unlocking breakthroughs in health care,

environmental sustainability, and even global peace. He spoke passionately about the potential of microorganisms to drive solutions to some of the most pressing challenges facing humanity, from antibiotic resistance to climate change. His message was clear—India's path to development is deeply intertwined with understanding and harnessing the power of microbial life.

24th September 2024: An **Alumni Meet-cum-Interaction** was organized. The occasion was graced by the presence of distinguished alumni who have made remarkable strides in their respective fields, each one sharing their unique journeys and imparting wisdom that transcended academic achievements.

- **Girish Singh**, an illustrious alumnus now serving as a pilot in the Army Aviation Squadron, recounted his exhilarating and challenging career in the armed forces. He talked on “My journey to the sky”. His narrative, rich with anecdotes of adventure and courage, spoke to the importance of resilience, precision, and dedication—qualities that had been nurtured during his formative years in the department.
- **Priyanka Sawhney**, a business coach for solopreneurs and the visionary founder of , took the stage. Her words carried a message of self-empowerment and personal growth, encouraging the audience to embrace self-love as a foundation for both personal and professional success.
- **Dr. Guddu Kumar** working as an Assistant Professor at Department of Zoology, DDUC took over the stage and his speech was a moving reflection on his journey from being a student in the department to standing among his former professors as a colleague. His heartfelt words embodied the essence of growth, perseverance, and academic camaraderie, reinforcing the notion that the department is not merely an institution but a lifelong community of learners and mentors. *(Teacher Coordinator: Dr. Anita Gulati)*

26th October 2024: An Educational Visit was organized to the **Akashvani Bhawan Delhi** to hear the lecture of eminent scientist **Dr. S. Somanath**, ISRO Chief on the occasion of birth ceremony lecture series of Sardar Patel Ji. 34 students from B.Sc. (H) Zoology, B.Sc. Life Sciences along with two teachers Dr. Guddu Kumar and Dr. Jai Kumar visited the Akashvani Bhawan for Sardar Patel memorial lecture. The program began with the opening remarks and contribution by Sardar Patel Ji in the organization of Bharat. Opening words were delivered by honorable president Droupadi Murmu Ji. Akashvani team welcomed the speaker of the day Dr. S. Somanath who started his lecture with the contribution of iron man of India, further he added the satellite system of India and their contribution in the weather forecast, telecommunication, tracking fishing vessels and success story of Chandrayan -3. Future space programs of India and status of ISRO on the global scale. *(Teacher Coordinator: Dr. Guddu Kumar, Dr. Jai Kumar)*

19th November 2024: **International Symposium on “Science and Society”** in association with the DBT Star College Program and Science Foundation was organised on 19th Nov, 2024 *(Organizing Secretaries: Dr. Renu Solanki, Dr. Shailly Anand).*

- **Prof. Kenneth Timmis** (Professor at University of Brunswieg, Germany): He delivered Keynote talk on “Microbiology Literacy: A Path to Material Improvement in Societal and Planetary Wellbeing and Sustainability”. Prof. Kenneth Timmis is the chief ambassador of

International Microbiology Literacy Initiative and in his talk, he emphasized why there is an urgent need for microbiology literacy in society. He also enlightened about the topic frameworks (TFs) and different curricular resources being developed to make microbes interesting for children learning as a new and promising concept.

- **Dr. Meenakshi Munshi**, (Fulbright Fellow, UC Davis, USA. Visiting Professor, UPES, Dehradun Consultant Manipal Academy of Higher Education, Manipal, Former Scientist G/Adviser, Department of Biotechnology, Ministry of Science & Technology, GOI). Dr. Meenakshi Munshi delivered talk on “How lessons learnt from plants can become Rules of Success”, She emphasized about the lessons which we can learn from plants, for example, Plants offer profound lessons in resilience, patience, and interdependence. Plants growth pattern is slow and steady process that requires time, care, and persistence which human beings should also follow. Plants teach us to stay rooted in our values while reaching toward the light of opportunity and growth.

During the symposium online poster presentation competition was held and the result of poster presentation was as follows:

- “Comparative Analysis of toxic dye degradation ability by different bacterial species” by Charu Agrawal, Shriyam Mishra, Yogita Jhinkwan, Chaitali Ghosh, Divya Gnaneswari, Gargi College, University of Delhi
- “Freshwater Pearls: The Secret life of *Lamellidens Marginalis*” by Aditya Sharma, Harsh Sharma, Guddu Kumar, Parikha Monga, Deen Dayal Upadhyaya College, University of Delhi
- “Science of Sleep and Societal Well being” by Jiya Goel, Ramjas College, University of Delhi and “Effect of Duckweed (*Lemna minor*) Based Diets on the Growth Performance of Rohu, fish (*Labeo rohita*)” by Ajay Singh Sikarwar, Department of Zoology.

20th - 24th November 2024: An **Outstation Trip to Jibhi, Himachal Pradesh** was organized from November 20 to November 24, 2024. During the trip, students explored the scenic Jibhi Waterfall, embarked on a trekking adventure to Serolsar Lake, and visited the vibrant Banjar Market. Additionally, they had the opportunity to visit the Great Himalayan National Park, where they experienced the region's rich biodiversity and natural beauty. The trip provided students with both recreational and educational experiences, fostering a deeper appreciation for nature and wildlife. (Teacher Coordinators: Dr. Guddu Kumar, Dr. Parikha, Dr. Jai Kumar, Dr. Vinay Singh Dagar).

September to November 2024: Student Lecture Series was organized as follows:

- **11th September, 2024:** “How to create phylogenetic tree in mega software” by Tanya Gupta, B.Sc Life Sciences (Teacher Coordinator: Dr. Anita Gulati). Tanya Gupta eloquently explained that advancements in genetic technology have revolutionized phylogenetic studies. With the accessibility of gene sequencing, evolutionary relationships can now be mapped with greater precision, offering insights into biological diversity and genetic classification. She also highlighted how DNA sequencing has become more efficient and cost-effective, facilitating swift data acquisition. Moreover, when genetic material is not available, such as in fossil studies, morphological estimates can serve as a valuable substitute to infer evolutionary changes.

- **21st October, 2024:** “*Entrepreneurship development and opportunities in fresh water pearl culture*” by Aditya Sharma, B.Sc. (H) Zoology (Teacher Coordinator: Dr. Guddu Kumar). Aditya Sharma's lecture focused on the potential of freshwater pearl culture as a burgeoning industry with vast entrepreneurial opportunities. He highlighted how the cultivation of freshwater pearls can be a sustainable and lucrative business venture, especially in rural and semi-urban areas, where natural resources can be harnessed effectively. The session emphasized on Entrepreneurial Development, Scientific Aspects of Pearl Culture, Opportunities in India
- **24th October 2024:** “*The chemistry of snake venom and its chemical potential*” by Tanmay, B.Sc. (H) Zoology (Teacher Coordinator: Dr. Parikha). Tanmay’s presentation covered a wide array of fascinating topics related to snake venom, beginning with an overview of venomous and non-venomous snakes. He provided a clear distinction between these groups, focusing on the ecological and biological importance of venom in the survival strategies of various snake species.
- **11th November, 2024:** “*Exploring Nanoparticle*” by Harshit Bhandari, B.Sc Life Sciences (Teacher Coordinator: Dr. Anjali). The lecture covered an introduction to the nanoparticles, types of nanoparticles, nanotechnology, applications of nanotechnology in real world, antimicrobial resistance, potential of herbal nanoformulations and drug delivery through nanoparticles. He also covered characterization of nanoparticles and potential of nanoparticles against ESKAPE panel.
- **13th November, 2024:** “*The Problem of heart attacks in young Indians*” by Abhishek (Teacher Coordinators: Dr. Parikha, Dr. Jai Kumar, and Dr. Vinay Singh Dagar). Abhishek in his lecture series apprised the students about the problem of heart attacks in young Indians. He further explained that Heart attacks, once considered a health concern for older individuals, are increasingly affecting young Indians. Sedentary lifestyles, unhealthy eating habits, high levels of stress, and genetic predisposition have contributed to a rise in cardiovascular diseases among young people. The session aimed to raise awareness about the causes, risk factors, preventive measures, and necessary lifestyle modifications to reduce the incidence of heart attacks.