

Report on the One Day National Seminar on “Recent Research Advances in Biological Sciences”, hosted by Department of Botany, Sikkim University on 07/03/2025

The Department of Botany, Sikkim University organized a one-day National Seminar on Recent Research Advances in Biological Sciences on the 7th March, 2025 at the Cauvery Hall of the University. The objective of the seminar was to provide insights into various aspects of research in biology such as nanostructured peptides for therapeutic applications, biodiversity and climate change, biomarkers and biosensors in plant disease diagnostics, genetic diversity in rice landraces of Sikkim, application of dendrochronology for climate response assessment as well as botanizing the silk route of Sikkim. The inaugural session of the Seminar was presided over by the Hon’ble Vice-Chancellor of Sikkim University Professor Dr. Jyoti Prakash Tamang as the Chief-Guest. The Head of the Department of Botany, Dr. Arun Chettri delivered the welcome address and introduced the event's objectives and significance. A brief introduction of the Hon’ble Vice Chancellor, Sikkim University, was presented, followed by an address from the Vice-Chancellor, highlighting the university’s commitment to research and innovation in biological sciences. Prof. Tamang in his speech highlighted the importance of gut microbiome and probiotics in development of immune response. He further emphasized on the scientific development of microbiome and metabolites such as biopeptides, immunomodulators and vitamins in therapeutic use. He marked his speech with importance on advanced techniques like metagenomics, bioinformatics and metabolomics and in-silico tools for drug development. He stated the importance of clinical trials in drug development towards cutting edge research.

The keynote lecture was delivered by Prof. Amitava Das, Emeritus Professor, Department of Chemical Sciences, Indian Institutes of Science Education and Research (IISER), Kolkata. His talk, titled "Nanostructured Aggregates of Short Peptides for Therapeutic Applications", provided insightful knowledge on the potential applications of nano peptide conjugates in cancer therapy and its action against resistant MRSA bacteria. His presentation was well-received, and sparked engaging discussions. The session concluded with a vote of thanks delivered by Dr. Arun K. Rai, expressing gratitude to all dignitaries and participants.

The technical session-I was chaired by Prof. Niladri Bag, Department of Horticulture, Sikkim University. The session provided insights into themes like dendrochronology in studying climate change, sustainable forest conservation and biodiversity and climate change. The first speaker Dr. Rajesh Joshi, Scientist E, G.B. Pant National Institute of Himalayan Environment and Sustainable Development, Sikkim Unit, delivered his lecture on the application of Dendrochronology for assessing climate response of tree species and sustainable forest management in Himalayan region. The 2nd speaker Dr. J.H. Franklin Benjamin, Sr. Scientist, Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok presented research on the diverse botanical species along the

historic Silk Route, emphasizing conservation efforts. The final speaker Dr. Bharat Kumar Pradhan, Scientific/Technical Associate, Sikkim Biodiversity Board elaborated on the intricate relationship between biodiversity and climate change, stressing the importance of conservation strategies. The technical session-II was chaired by Dr. Rajesh Kumar, Department of Horticulture, Sikkim University. This session aimed at providing insights into Biomarkers and Biosensors in Plant Disease Diagnostics as well as genetic Diversity in Rice (*Oryza sativa* L.) Landraces of Sikkim-Himalaya and Early insight into their use in Genome-Wide Association Studies. The first speaker Dr. Lhanjey P. Wangdi, Associate Professor and Head, Nar Bahadur Bhandari Government College, Tadong, Gangtok explained the advancements in biomarker-based plant disease detection, highlighting its potential in precision agriculture. The final speaker Dr. Deepak Chettri, Technical Assistant, Department of Botany, Sikkim University focused on the genetic diversity of rice landraces in Sikkim and their implications for crop improvement. The session concluded with remarks by Dr. Santosh K. Rai, who summarized the key takeaways from the discussions. A final vote of thanks was extended to all participants, speakers, and organizers.

The seminar ended with informal networking and further discussions. The seminar enlightened the young students and researchers with ideas and prospects for contribution in the scientific world.







