

**Brief report of DST-SERB sponsored Workshop on “Nano & Micro Formulations as Drug Delivery Systems”**

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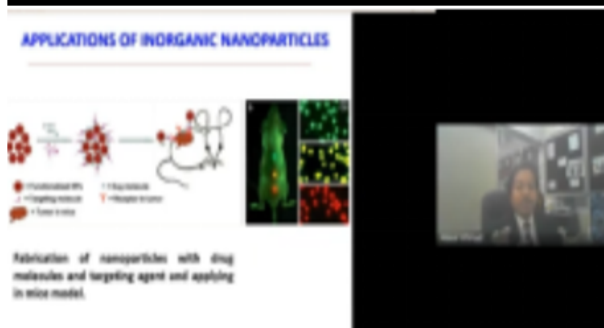
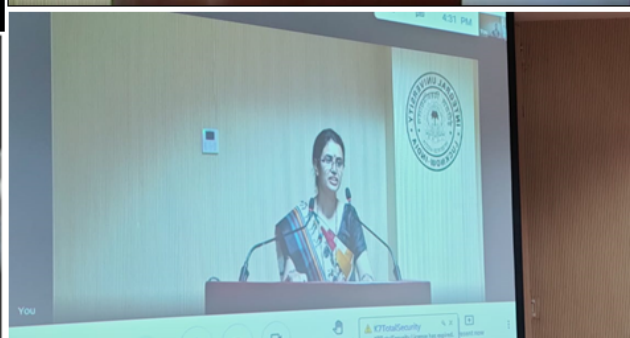
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A report on a Two-day workshop on “Nano &amp; Micro Formulations as Drug Delivery Systems”

*Sponsored by***Department of Science and Technology (DST-SERB) under the SERB Scientific Social Responsibility (SSR) Policy**

A DST-SERB sponsored Two-Day Workshop was organized by the Department of Biosciences on “Nano- and Micro- Formulations as Drug Delivery Systems” on 9<sup>th</sup> & 10<sup>th</sup> March 2021 under the SERB Scientific Social Responsibility (SSR) policy. The primary purpose of the workshop was to update scientific skills and foster research culture in faculty of nearby colleges and Universities. The workshop aimed to provide core nanoscale concepts, hands-on training on nano- & micro- formulations as well as applications of nanoparticles in Targeted Drug Delivery for Cancer and infectious diseases. The workshop brought together educational researchers and science educators and nanoscientists so as to discuss and better understand the impact of nano and micro formulations as a drug delivery system and to plan for the integration of concepts of the nanoscale respective to research areas.

The inaugural program began with the welcome address and brief presentation of the workshop by Dr. Rolee Sharma, Organizing Secretary of the workshop and commenced with the encouraging and inspiring words of the **Hon’ble Vice-Chancellor, Integral University, Prof. Javed Musarrat**, the Chief Guest of the workshop. This was followed by an online keynote address by **Prof. (Dr.) Absar Ahmad, Director, Interdisciplinary Nanotechnology Center, Aligarh Muslim University**, the Guest of Honor of the Workshop. During the talk, he enlightened the participants with key point applications of nanoformulations in research and medical fields, followed by anticancer drug extraction from endophytic fungi, and their immobilization on nanosystems for drug delivery applications that are expected to have a significant impact on the emerging field of nanomedicine. He also highlighted various applications of nanoparticles in cancer, infectious diseases and Medical Image Analysis.

**Enlightening address by Hon’ble Vice-Chancellor Prof. Javed Musarrat****Welcome address by Dr. Rolee Sharma, HOD, Department of Biosciences****Online lecture by Prof. Absar Ahmad**

During the first session of the workshop, **Dr Amit Misra, Sr. Principal Scientist & Head, pharmaceuticals and pharmacokinetics division, CSIR-Central Drug Research Institute, Lucknow**, gave an online talk on 'Pulmonary drug delivery, including scope in COVID-19'.

An interactive technical practical session & Hands-on training on the synthesis of nanoparticles was conducted in the afternoon session by **Er. Zeeshan Rafi, Faculty, Department of Biosciences, Integral University, Lucknow**. Another interactive technical session was conducted in parallel, by **Mr. Firoz Ahmad** in the IIRC-3 Research Laboratory of Integral University on the synthesis of yeast-derived beta-glucan microparticles along with their applications as a drug delivery system. The 2nd day of the workshop started with invited online talks. The first lecture of the morning session was by **Dr. Pavan Muttil, Associate Professor, University of New Mexico, Albuquerque**, on 'Pulmonary delivery of therapeutics for lung cancer- is precise targeting of tumours in the lung possible?', and was focused on the last and current decades on the delivery of various oncolytics

for pulmonary delivery for the treatment of lung cancer. The next lecture by **Prof. Shanthy Sundaram, Coordinator, Centre of Biotechnology, University of Allahabad, Allahabad** was on '*Silica-based immuno-biosensors using diatoms for fungal pathogen detection*'. Thereafter, **Dr Awadh B. Yadav, Assistant Professor, Centre of Biotechnology, Nehru Science Center, University of Allahabad, Allahabad**, delivered a lecture on '*Targeted delivery of siRNA loaded micro and nanocarriers for the treatment of lung inflammation and lung cancer*'. During the lecture, he highlighted the benefits of using siRNA and nanoparticles in lung cancer treatment and also discussed why and how nanoparticles and siRNA can be combined to achieve efficient treatment of lung cancer for prospective clinical applications. The last lecture of the Day 2-morning session of the workshop was delivered by **Prof. Shubhini Saraf, Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Lucknow**, on '*Lipid-based nanoparticles: the versatile dosage forms*'. During her lecture, she stated that lipid nanoformulations can be tailored to meet a wide range of product requirements dictated by disease condition, route of administration and considerations of cost, product stability, toxicity and efficacy.



The post-lunch, technical practical session of Day 2 of the workshop was conducted by **Er. Zeeshan Rafi, Department of Biosciences**. During the session, he briefed the bioconjugation process step by step to participants along with mechanistic insights of the process, its advantages and drawbacks. The session also included 'hands-on training' on bioconjugation of synthesized nanoparticles with FDA approved drug(s). The specialized equipments including High-Performance Liquid Chromatography, Nanodrop, Lyophilizer, RT-PCR, Fluorescence Spectroscopy in the Research Labs of the IIRC, Integral University, Lucknow were also demonstrated. During the valedictory session of the workshop, **Prof Aqil Ahmad, the Pro-Vice-Chancellor, Integral University** distributed certificates to the faculty participants. The program ended with a Vote of Thanks given by **Dr. Rolee Sharma, HOD, Department of Biosciences**. DST-SERB was also acknowledged for providing financial support, which laid the foundation and paved the path for the successful organization of the workshop.



Thank you

Best Regards  
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