

“Mapping Molecules with Magnet”
under DST Sponsored STUTI Programme

organised at

Jamia Hamdard University

The week-long training programme on “Mapping Molecules with Magnet” was held during October 28 to November 03, 2022. It was organised by Drug, Design and Medicinal Chemistry Lab (DDMC) of School of Pharmaceutical Education and Research (SPER) at the JAMIA HAMDARD UNIVERSITY, NEW DELHI, INDIA, under the “Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI)” supported by the Department of Science and Technology (DST), Government of India. It started with the inauguration programme on 28.10.2022 in the Auditorium of Hamdard Archives.

This event was aimed at understanding the natural, semisynthetic and synthetic molecules using Nuclear Magnetic Resonance (NMR) and to provide hands-on training on NMR-Instrumentation. The objective of this training programme was to provide an elaborative information on basic concept behind NMR, characterization of phytoconstituents, characterization of synthetic small molecules and quantitative analysis using NMR.

The inaugural function of the programme was conducted at the Jamia Hamdard, New Delhi on 28.10.2022 in the Auditorium of Hamdard Archives. **Dr. Mamta Rani Agarwal**, Advisor-I of All India Council for Technical Education (AICTE) had accepted our invitation for being the chief guest of the inaugural ceremony, but due to some urgent meeting she could not attend the function. The inaugural function was attended by many dignitaries viz; **Prof. (Dr.) Afshar Alam** – Vice Chancellor; Prof. (Dr.) Vidhu Aeri - Dean, SPER; Prof. S.H.Ansari-Director DODL; Prof. Mohammad Amir- Ex-Dean, SPER; Prof. M. Sarwar Alam- Proctor, JH; Prof. S.Raisuddin- Research Advisor; Prof. Suhel Parvez; Prof. (Dr.) M. Mumtaz Alam – Convenor, Dr. M. Shaquiquzzaman - Co-Convenor and Dr. Showkat R Mir - Co-Convenor. The function was started with Recitation of Holy Quran. Dr. Showkat R Mir- Jt Organizing Secretary welcomed the distinguished guests, participants and all dignitaries gathered for the function. He revived history of how this NMR instrumentation facility was established at Jamia Hamdard and briefly explained various training programmes conducted under the aegis of DST-STUTI program. Further, **Prof. (Dr.) Vidhu Aeri** in her speech welcomed all to the beautifully organized programme. She said that she is very proud of the NMR facilities, DST FIST and

expressed her thanks to the funding agency for the help extended to upgrade the existing NMR instrument. **Prof. M. Afshar Alam**, Vice Chancellor, Jamia Hamdard stated that Jamia Hamdard was recognised as implementing agency for STUTI. The basic objective of DST is to inculcate science education in students so that more people will come to this stream. The purpose of the programme is to train participants with the Science and Technology infrastructure in the country. He also emphasized that Jamia Hamdard Ranking has been improving year on year and recently it has witnessed a very good jump that all were possible due to the hard work of our Professors, Scholars and other stakeholders. He briefed on the importance and significance of NMR in research and development field. He felt happy that Jamia Hamdard maintained own NMR instrument for last 17 years. This facility has recently been upgraded with the support of DST- FIST programme and HNF.

Dr. M. Shaquiquzzaman - Co-Convenor delivered Vote of Thanks on behalf of the DST STUTI Team and conducted the proceedings of inaugural function, convened all the activities undertaken under Training Programme.



In the week-long training programmes, 30 participants with different disciplines from different parts of the country participated in the programme. Scientific talk on diverse topics of research were delivered by Dr. B. S. Joshi from MRS Division of BBIO; Prof. (Dr.) Shashank Deep from IIT, Delhi; Dr. Imran Khan from Analytical Division of Dabur; Dr. Sanjeev K. Shukla from CDRI, Lucknow; Prof. (Dr.) Rama Jayasundar from AIIMS, New Delhi; Dr. Monica Sundd from NII, Delhi; Dr. Neel Sarovar Bhavesh from ICGEB, New Delhi; Prof. (Dr.) Punit Kaur from AIIMS; Dr. P Mukhopadhyay from JNU, Delhi; Dr. Vinay Gupta from BD-FACS; Prof. (Dr.) D. S. Rawat from Chemistry department, University of Delhi; Dr. Showkat R. Mir,

JH; Dr. M. Shaquiquzzaman, JH; Prof. (Dr.) M. Mumtaz Alam, JH; Dr. Mohammad Ahmed Khan, JH; Prof. (Dr.) Mymoona Akhter, JH; Dr. Ozair Alam, JH; Prof. (Dr.) Mohd. Amir, JH and Prof. (Dr.) S. Raisuddin from Jamia Hamdard, New Delhi.

On day 1, two lectures were delivered to impart basic concepts of NMR along with question-and-answer session after each lecture.



The day 2 started with a visit to herbal garden and animal house which was followed by two plenary lectures, one on “**Food authenticity analysis using NMR**” by **Dr. Imran** from Dabur and another on “**Application of NMR based Metabolomics**” by **Dr. Sanjeev K. Shukla** from CDRI. At the end of the day hands-on training on NMR-Instrumentation was carried out where in participants were shown how to run the NMR samples to get their NMR spectra. On day 3, post sessions, a local tour was also organized. On day 4, bioinformatics sessions were conducted which included hands-on training as well. Along with this the lectures of **Prof. (Dr.)**

Rama Jayasundar, Head, Department of NMR, AIIMS, New Delhi (Topic: **NMR molecules and Biomedical applications**) and **Dr. Monica Sundd**, National Institute of Immunology (NII), Delhi (Topic: Protein Ligand interactions using NMR) were successfully organized. The Day 5 witnessed an excellent lecture by **Dr. Neel Sarovar Bhavesh**, Group Leader, Transcription Regulation, ICGEB, New Delhi (**Basics of multi-dimensional Biomolecular NMR**) along with a lecture on a brief introduction about LC-MS by **Dr. Ozair Alam** and the day ended with hands-on training on LC-MS. On day 6, there were three plenary lecture sessions which were delivered by **Prof. (Dr.) Punit Kaur**, Department of Biophysics, AIIMS (Topic: **How Structures aid Drug Design and Discovery**); **Prof. (Dr.) Mohd. Amir**, Department of Pharmaceutical Chemistry, SPER, Jamia Hamdard, New Delhi (Topic: **Structure determination of organic compounds**) and **Dr. P Mukhopadhyay**, School of Physical Sciences, JNU, Delhi (Topic: **Understanding of Electronic effects in Pi-Conjugated Neutral and Ionic**). These lectures were followed by an interpretation of 1D/2D-NMR data for natural and synthetic compounds. The day 7 started with a lecture by **Dr. Vinay Gupta**, Application Manager, BD-FACS (Topic: **Exploring Nature at cellular level**) followed by an extra ordinary lecture by **Prof. (Dr.) D. S. Rawat**, Department of Chemistry, University of Delhi, Delhi (**Basic Introduction of NMR spectroscopy and its role in structure elucidation**).



All the sessions were concluded and post workshop assessment was done. Training programme was ended with certificate distribution ceremony.