

Report on Field Visit to CSIR–Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad

A field visit was organized to CSIR–Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, to attend the SAMYUKTH – Season 8 Poster Day on Friday, 12th December 2025.

The visit was attended by Faculty members Mrs. P. Sandhya Rani and Mrs. Nanda Kulkarni, along with students of B.Sc. Biotechnology (BtZC) I Year and II Year and BZC II Year. The program was held at the Swami Vivekananda Auditorium, CSIR-IICT, commencing at 10:30 AM.

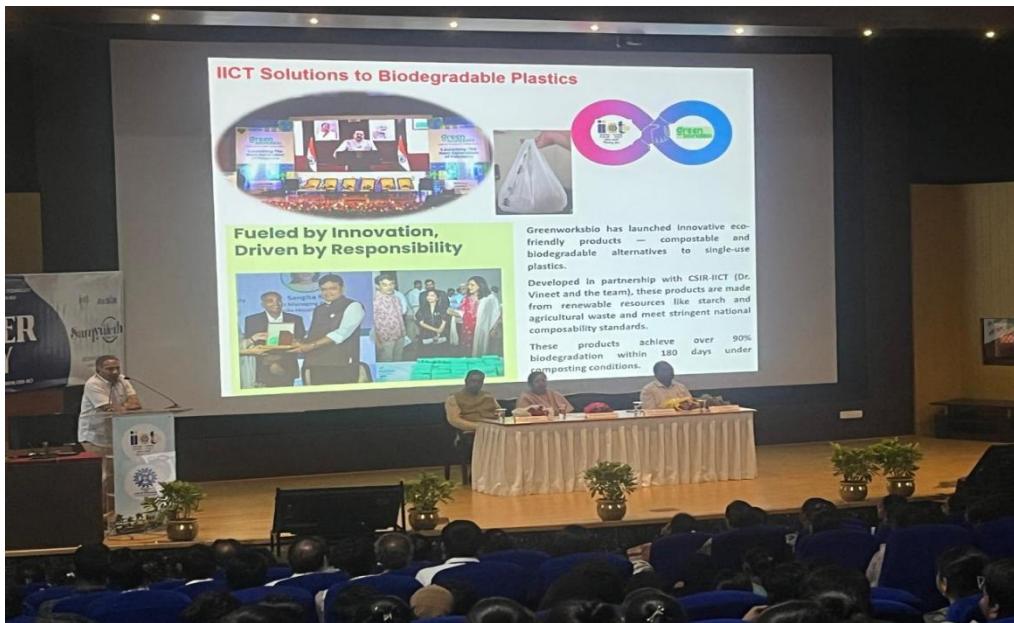
The event began with an opening ceremony, followed by the genesis and importance of Poster Day, highlighting the role of interdisciplinary research and innovation. Eminent scientists addressed the gathering, including the Director of CSIR-IICT, Dr. D. Srinivasa Reddy, and the Chief Guest, Dr. Geetha Vani Rayasam, Director, CSIR-NIScPR. The sessions provided valuable insights into research opportunities at AcSIR and CSIR laboratories, motivating students towards higher education and research careers.

An Abstract Book Release and video presentation on CSIR-IICT's research activities further enhanced students' understanding of ongoing scientific advancements. The programme concluded with the National Anthem.

In the afternoon session, the Poster Gallery was inaugurated, followed by an extensive poster presentation session. Students actively interacted with research scholars and scientists, gaining exposure to cutting-edge research in chemical sciences, Biotechnology, Nanotechnology and interdisciplinary fields. A laboratory tour was also arranged, offering firsthand experience of advanced instrumentation and research facilities at CSIR-IICT.

Overall, the field visit was highly informative and inspiring, providing students with practical exposure to research culture, scientific communication through posters, and career opportunities in national research institutions. The visit successfully bridged classroom learning with real-world scientific research.





ADVANCED CHROMATOGRAPHY AND MASS SPECTROMETRY METHODS FOR RAPID DETECTION OF MICROPLASTICS AND ITS MONOMERS IN FOOD, PHARMA, AND MEDICAL PACKAGING MATERIALS

Samvith
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Madhav.P, Prerana.S, Srisatyavani.P, Gayatri.K, Akhil.N, Saikrishna.G, Nagaraju Rajana*
Centre for mass spectrometry & separation sciences, Dept. of Analytical & Structural Chemistry (DA&SC) CSIR-IICT, Hyderabad-500 007, TS, India.

Aim

- To develop and validate highly sensitive chromatographic and mass spectrometry methods for quantification of microplastics and its monomers in different packaging materials.
- Establish SPE and Liquid-Liquid extraction procedures.

Background

- Plastics persist for decades to centuries and fragment into microplastics and nanoplastics.
- Microplastics (MPs), defined as discrete particles less than 5 mm in size.
- Global plastic use exceeds 300 million tonnes/year, with widespread MP contamination in air, water, soil and food. Humans ingest and inhale tens of thousands of MPs daily.
- MPs contain monomers and additives (phthalates, BPA, etc.) that can leach and transfer to food and environment.
- PET widely used in packaging contributes to environmental MPs and can release monomers/chemicals regulated by food-safety standards.
- Specific migration limits for PET monomers: Triethylactic Acid: 7.5 mg/kg
- Overall migration limit: 60 mg/kg

Sources of microplastics and its monomers

Representation of listed plastic monomers

Typical Chromatograms of 13 monomers

Linearity chromatograms of PET monomers (0.5 µg/ml to 100 µg/ml)

Linearity graphs of monomers

Conclusion:

- Developed a robust UPLC chromatography method for the separation of 13 monomers.
- Optimized for 13 monomers in single LC-HRMS method to quantify in the packaging materials.
- Water sample analysis from different water bodies across India.

ACKNOWLEDGEMENTS - Thanks to the Director of IICT and colleagues in the Department Analytical and Structural Chemistry for their invaluable support

Group activities:

- Identification and quantification of genotoxic impurities, including N-Nitrosamine impurities in pharmaceutical products.
- Impurity profiling, degradation studies and stability studies of drug substances and drug products using chromatography and Mass spectrometry techniques.
- Isolation and characterisation of pharmaceuticals and phytochemical compounds using chromatography, mass spectrometry and other spectroscopic techniques.
- Untargeted and targeted multi-omics in biological samples by GC-MS/MS and LC-HRMS/MS.

References:

- Commission Regulation (EU) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food text with EEA relevance.
- Guidelines for extractable and leachables OECD draft guidance, effective on 01 August 2025.
- Meng Zhang et al. Recent Applications in Analytical Techniques of Microplastics. <https://doi.org/10.1080/10408347.2025.2518328>

AcSIR



CSIR-INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY

SAMYUKTH-SEASON-8 - Poster Day on December 12, 2025

Timings: 10.30 AM (Friday)

Venue: Swami Vivekananda Auditorium, CSIR-IICT.

PROGRAMME

S.No.	Time	Activity	Personnel
01	10.30-10.35	Opening Ceremony	
02	10.35-10.50	Bouquet to Director and Chief Guest	NILA
03	10.50-11.00	Genesis and Importance of Poster Day	Dr. Pradosh P. Chakrabarti, AcSIR Coordinator & Chief Scientist
04	11.00-11.10	About AcSIR/AAU& Research Opportunities	Dr. L. Giribabu, Chief Scientist & AAU, chairman
05	11.10-11.20	Address by DIICT	Dr. D. Srinivasa Reddy, Director, CSIR-IICT
06	11.15-11.25	About Jigyasa	Dr. K. N. Prasanna Rani, Chief Scientist, CSIR-IICT
07	11.25-11.35	Address by Chief Guest	Dr. Geetha Vani Rayasam, Chief Guest Director, CSIR-NIScPR
08	11.35-11.45	Abstract Book Release	Dr. Srinivasa Reddy, Dr. Pradosh P. Chakrabarti, Dr. L. Giribabu, Dr. A. Manjula and Dr. T. Kumaraguru
09	11.45-12.00 Noon	Video Clippings of CSIR-IICT	
10	12.00-12.05	Concluding Remarks	Dr. T. Kumaraguru, Senior Scientist, CSIR-IICT
11	12.05-12.10	NATIONAL ANTHEM	
12	14.00-14.10	Inauguration of the Posters gallery	Dr. D. Srinivasa Reddy, Director, CSIR-IICT
13	14.10-17.00	Poster Session (Opposite Discovery Lab). Presentation of Poster by students & Faculty of CSIR-IICT Lab Tour: by the visiting students.	