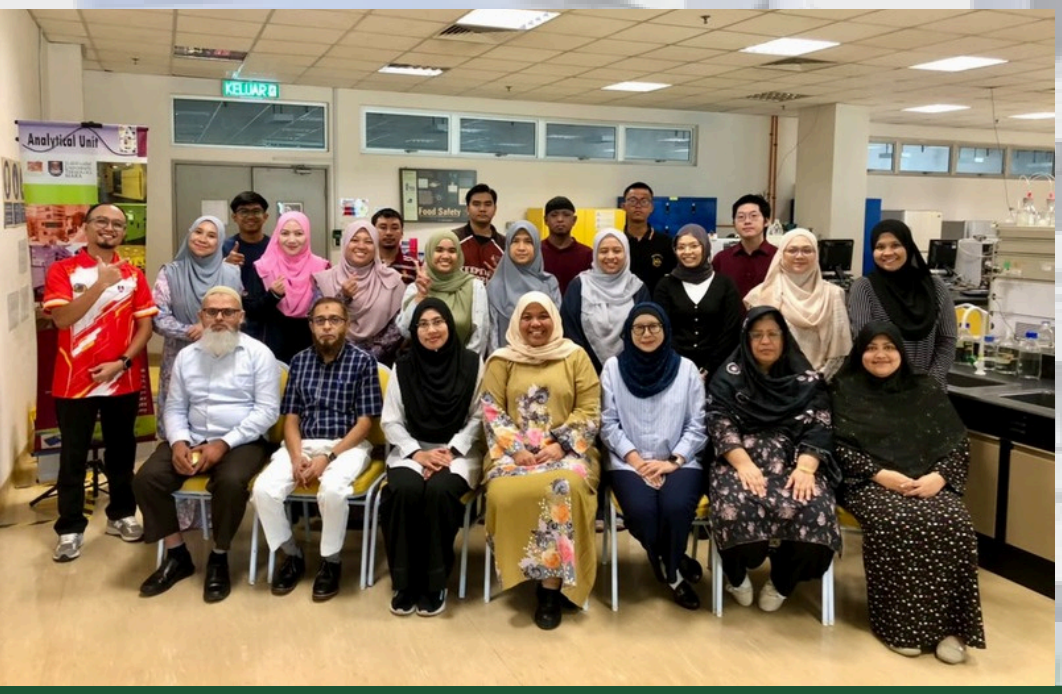
FROM SAMPLE TO SIGNAL:

INTEGRATED WORKSHOP ON SAMPLE PREPARATION & HPLC

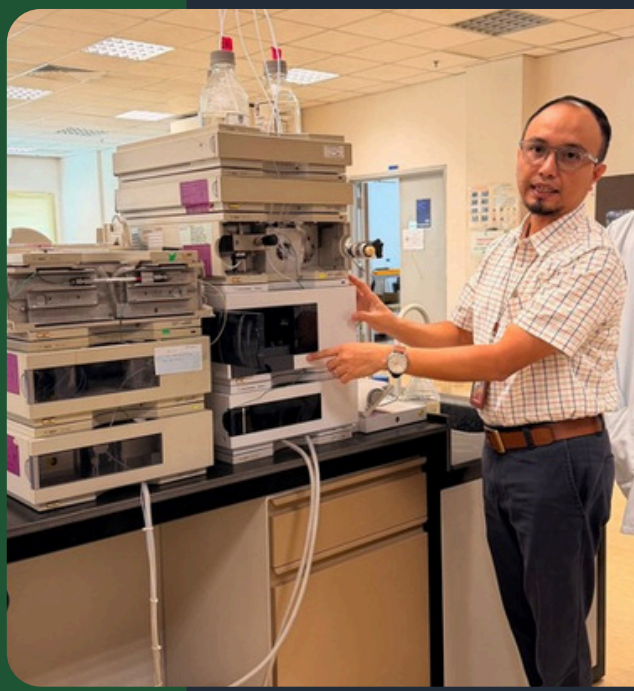
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22–23 September 2026

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The Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), in collaboration with the Analytical Unit, successfully organised a two-day workshop, “From Sample to Signal: Integrated Workshop on Sample Preparation & HPLC”, on 22–23 September 2026. The workshop was designed to provide participants with an integrated understanding of sample preparation and high-performance liquid chromatography (HPLC), with an emphasis on practical laboratory applications, method development, troubleshooting, and analytical data interpretation.



The workshop attracted 33 participants, comprising 20 academic and laboratory officers, 10 students, and 3 researchers from other universities. This diverse participation encouraged knowledge exchange among academic staff, laboratory personnel, and students, while providing opportunities for professional networking beyond the Faculty of Pharmacy.

Structured around the complete analytical workflow, the workshop began with sample preparation and progressed to HPLC analysis and data interpretation. This integrated approach highlighted a fundamental principle of analytical chemistry: that the reliability of analytical results depends not only on instrumental performance but also on the quality of the sample entering the analytical system.

The first day focused on analytical workflow and sample preparation. Participants were introduced to the analytical process from sample receipt and preparation through to instrumental analysis and interpretation. Sessions on the theory of sample preparation and advanced sample preparation approaches further explored sample preparation principles, interference removal, analyte concentration or dilution, and strategies for handling complex samples, with consideration of recovery, selectivity, and reproducibility.

The theoretical sessions were reinforced through an interactive hands-on sample preparation session, in which participants rotated through practical stations covering extraction, filtration, centrifugation, solid-phase extraction, and sample concentration. Working in small groups allowed participants to follow the progression from raw sample to an extract suitable for chromatographic analysis while encouraging discussion and the exchange of laboratory experience.

The second day focused on HPLC instrumentation and analytical applications. Participants were introduced to the fundamental principles of HPLC, followed by sessions on HPLC method development and optimisation, troubleshooting, and basic maintenance, and method validation, including precision, accuracy, limit of detection (LOD), and limit of quantification (LOQ). These sessions were complemented by practical HPLC activities involving method development as well as qualitative and quantitative analysis.

The workshop concluded with data analysis and interpretation, where participants explored chromatogram evaluation, peak identification and integration, calibration curves and quantification, as well as common errors in interpreting chromatographic data. This reinforced the importance of a careful evaluation of analytical results before drawing scientific conclusions.





By combining lectures, demonstrations, and hands-on activities, the workshop provided participants with an opportunity to connect theoretical knowledge with laboratory practice. The programme also served as a platform for sharing the expertise and facilities available within the Faculty of Pharmacy and its Analytical Unit, while fostering interaction among participants from different backgrounds and institutions.

The successful organisation of the workshop reflected the collaborative efforts of the Department of Pharmaceutical Chemistry and the Analytical Unit, Faculty of Pharmacy, UiTM. With its integrated focus extending from sample preparation to HPLC analysis and interpretation, the "From Sample to Signal" workshop demonstrated the importance of understanding the entire analytical journey in producing reliable and meaningful scientific data. The programme is expected to support continued knowledge sharing, professional development, and future collaboration in analytical and pharmaceutical sciences.

