

Date: 23/06/2025**REPORT OF FACULTY TRAINING**

Sr.No.	Particulars	Remarks
1.	Subject	Faculty Training
2.	Topic	HPTLC Training
3.	Venue	Anchrom Enterprises Pvt. Ltd, Mumbai, A-101, Shree Aniket Apt, Navghar Rd, Mulund (E), Mumbai – 400081
4.	Contact Details	Ms. Namrata Bachim Application Specialist, Lab Anchrom Enterprises I Pvt. Ltd Mobile No.: 9833830895 Email Id: lab@anchrom.in Website: www.anchrom.in
5.	Day and Date	21 st June 2025, Saturday
6.	Time	10:00 AM to 5:30PM

**Principal**

Dr. (Mrs.) Vanita G. Kanase

PRINCIPAL
AIMS College of Pharmacy
At-AIMS Foundation, Vadavli
Dombivli (E)

HPTLC TRAINING REPORT

Objective of the Training

The training aimed to provide in-depth knowledge and hands-on exposure to High-Performance Thin Layer Chromatography (HPTLC), its evolution from traditional TLC, instrumentation, applications across various industries, and regulatory compliance.

Training Agenda Highlights

Mr. Path Trivedi, Application Specialist at Anchrom Enterprises, delivered an insightful presentation covering the fundamentals and advanced aspects of High-Performance Thin Layer Chromatography (HPTLC). His session began with the basics of chromatography and elaborated on the evolution from traditional Thin Layer Chromatography (TLC) to modern HPTLC systems. Participants were introduced to the modular instrumentation setup, sample application techniques, and various detection systems. Mr. Trivedi also detailed quantification techniques using densitometry, followed by a discussion on regulatory acceptance, method validation, and compliance requirements in pharmaceutical and herbal industries.

Live Demonstration: Caffeine Detection in Green Tea using HPTLC

Mr. Trivedi conducted a live HPTLC demonstration, showcasing:

- Sample preparation of green tea extract
- Application using ATS applicator
- Mobile phase selection specific to caffeine separation
- Development in bands in chamber
- Visualization using UV light and derivatization
- Quantification of caffeine using CAMAG TLC Scanner
- Comparison with standard caffeine fingerprint & Absorbance Spectra

The demonstration helped faculty understand method development, band interpretation, and quantification of caffeine using HPTLC

Applications of HPTLC

HPTLC is a versatile analytical technique with wide-ranging applications across several industries. In the herbal sector, it is widely used for the comparative fingerprinting of medicinal plants such as Jamun, Papaya, and Ashoka. The technique is also crucial for the identification and quantification of bioactive compounds in botanicals like *Withania somnifera* (Ashwagandha). Additionally, it aids in the analysis of β -Sitosterol (B-Stirol), a key phytosterol found in various herbal formulations.

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In the food industry, HPTLC plays an important role in ensuring food safety and quality. It is used for the detection of harmful additives such as Rhodamine B and the identification of Monosodium Glutamate (MSG) in processed foods like potato chips. The technique also allows for the detection of sucrose in alcoholic beverages including liquor, vodka, and rum, as well as sugar profiling in honey. Moreover, it is capable of identifying synthetic food colors, which may be either adulterants or non-permitted dyes in food products.

In the pharmaceutical and forensic fields, HPTLC is instrumental in the analysis of active pharmaceutical ingredients such as Ciprofloxacin and Dexamethasone in ophthalmic preparations and Framycetin sulphate in topical creams. It is also employed for the detection of Eugenol in toothpaste, Curcuminoids in ayurvedic and cosmetic products, and sandalwood oil in soaps. Furthermore, the technique is used to detect cannabinoids in Cannabis sativa, playing a critical role in forensic drug analysis and the identification of explosives and other illicit substances.

Instrumentation Techniques & Modules

Advanced instrumentation is at the core of HPTLC. The training covered various essential modules including derivatization techniques and quantification using a TLC scanner. Participants learned how to conduct phytochemical analysis and interpret absorbance spectra for compound identification. The use of a TLC-MS interface was demonstrated, showing how HPTLC can be coupled with mass spectrometry for enhanced analytical capabilities. Additionally, the session introduced the HPTLC Pro Platform, an automated solution designed for high-throughput analysis. Method development using High-Performance Isocratic and Gradient Liquid Chromatography (HPILC) was also discussed, highlighting its flexibility in complex separations.

Regulatory & Compliance Aspects

The session emphasized the USP HPTLC parameters outlined in Chapter 1064, which provide standardized guidelines for HPTLC method development and validation. The CAMAG HPTLC systems were highlighted for their compliance with quality control (QC) and research standards, making them suitable for regulated environments. Moreover, the global regulatory acceptance of HPTLC by agencies such as the FDA, WHO, and AYUSH confirms its reliability and widespread applicability in the pharmaceutical, food, and herbal industries.

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Details of Faculty Members who attended the training:

Sr. No	Name	Contact Number	Email ID
1	Mrs. Ashwini Bharati	7972375393	bharatiashu.aimscop@gmail.com
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9	Ms. Kajal Yadav	9372283969	kajalyadav.aimscop@gmail.com
10	Ms. Dhanashree Bhosale	8452960873	dhanashreebhosale.aimscop@gmail.com

Conclusion

The HPTLC training by Anchrom provided all faculty members with a theoretical foundation and practical experience in advanced chromatographic techniques. The real-world applications in herbal, food, pharmaceutical, and forensic sciences were particularly insightful and aligned with current industry and research trends. **It plays a vital role in quality control, impurity profiling, and ensuring the safety and efficacy of drug products. HPTLC is also valuable in herbal drug analysis, fingerprinting of formulations, and detecting adulterants.**

Highlight of the session:



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