

# A Review on High Performance Thin Layer Chromatography

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**Abstract-** HPTLC is a method used for screening lichen substances . It is simple to use. Advantages like : more sensitive, time consuming , less solvent are used.

**Keywords-** High performance thin layer chromatography ( HPTLC ) , efficiency , validated , instrumentation.

## I. INTRODUCTION

High performance thin layer chromatography is powerful and advanced form of thin layer chromatography . They consist of chromatographic layers of utmost separation efficiency . Applications of instrumentation for all steps in the procedure they are following: accurate sample application , standardized methodology based on scientific facts and the use of validated methods for qualitative and quantitative analysis . High performance thin layer chromatography it is also known as high pressure thin layer chromatography or planar chromatography or flat bed chromatography. It is mostly useful for qualitative and quantitative methods . Separation due to adsorption , partition or both.

### Applications :

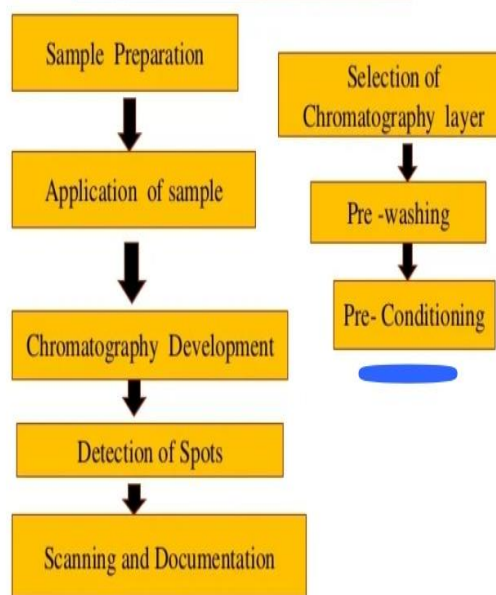
1. Phytochemical analysis
2. Biomedical analysis
3. Herbal drug quantification
4. Analytical analysis
5. Finger print analysis

### Advantages and disadvantages HPTLC over TLC :

1. Separation is easy for coloured compound.
2. They have high efficiency than TLC.
3. They perform validation, quantitative analysis, spectrum analysis.
4. TLC is more time consuming than HPTLC .
5. HPTLC have autosampler.
6. HPTLC have shortage migration distance and the analysis time is greatly reduced.
7. Use of UV/visible/ fluorescence scanner scans the entire chromatogram qualitatively and quantitatively and scanner is an advanced type of densitometer.

8. So many samples can be separated parallel to each other on the same plate resulting in a high output , time saving and a rapid low cost analysis.

### Steps involving in HPTLC



#### 1. Selection of stationary phase :

In method development stationary phase selection based on compounds to be separated . HPTLC uses smaller plates . HPTLC plates provide improved resolution , higher detection sensitivity and improved in situ quantification .

#### 2. Sample application :

Sample application are performed by using techniques are spot application and spraying. Sample application is the first step in chromatography and it affects on quality of result.

#### 3. Chromatogram development:

In this technique in addition to stationary and mobile phases , a gas is present. This has phase can influence the result of separation.

Process : The lower end of the product should be immersed and act by capillary action the developing solvent moves up the layer until the desired distance is reached then chromatography is stopped. Stationary phase is silica gel which can be described as adsorption chromatography.

#### 4. Choosing a developing chamber :

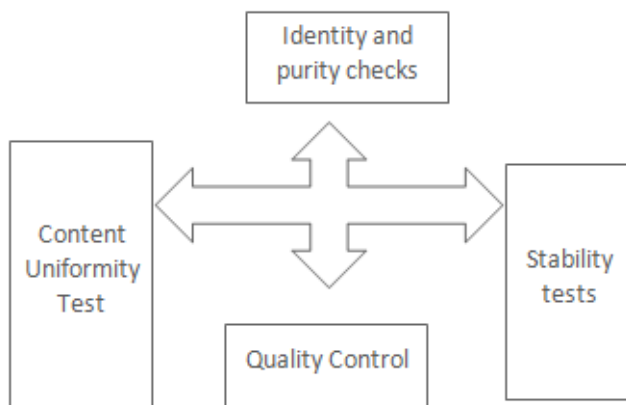
Selection of chamber is done during method development and follows consideration such as chamber is available , which one must be used . Horizontal developing chambers have proven to be exceptionally economical , flexible and reproducible in operation.

#### Evaluation : Detection

The chromatogram is evaluated under white or ultraviolet light . Options range from visual inspection of electronic images to quantitative determination using video or scanning densitometry.

#### Applications:

##### Pharmaceutical applications :



## II. CONCLUSION

HPTLC is used for manufacturing units of bulk drugs, process monitoring, fermentation broth analysis, residue analysis and in process material testing. Applications of HPTLC for stability tests, phytochemical analysis, identity and purity checks, biomedical analysis, content Uniformity test, herbal drug quantification, etc. It is note worthy that utilization of instrumental HPTLC toward the analysis of drug formulations, bulk drugs, natural products, clinical samples, food stuffs, environmental and other relevant samples will increase in the future.

## REFERENCES

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