# To perform Thin Layer Chromatography of Drugs

**INTRODUCTION:  Thin Layer Chromatography (TLC)**

A **drug test** is a technical analysis of a biological specimen, for example urine, hair, blood, breath, sweat, and/or oral fluid/saliva—to determine the presence or absence of specified parent drugs or their metabolites. Thin-layer chromatography is a chromatography technique used to isolate non-volatile mixtures that separates pigments, identifying molecules. TLC is used for the identification and comparison of drugs, explosives, inks and dyes. Different metabolites present in a drug can be separated using TLC.

A drug test diagnose for the presence of one or more illegal or prescription drugs in your urine, blood, saliva, hair, or sweat. Urine testing is the most common type of drug screening. The drugs most often tested for include; Marijuana, Opioids, such as heroin, codeine, oxycodone, morphine, hydrocodone, and fentanyl, Amphetamines, including methamphetamine, Cocaine, Steroids, Barbiturates, such as phenobarbital and secobarbital Phencyclidine (PCP)

**AIM:**

Our goal is to examine the results obtained by thin-layer chromatography test in the analysis of samples of drugs.

**PRINCIPLE:**

Presumptive substance tests attempt to identify a suspicious substance, material or surface where traces of drugs are thought to be, instead of testing individuals through biological methods such as urine or hair testing. The test involves mixing the suspicious material with a chemical in order to trigger a color change to indicate if a drug is present. Laboratory-based drug testing is done in two steps. The first step is the **screening test**, which is an immunoassay based test applied to all samples. The second step, known as the confirmation test, is usually undertaken by a laboratory using highly specific chromatographic techniques and only applied to samples that test positive during the screening test

**PROCEDURE:**

**Thin Layer Chromatography Procedure**
Important step of thin-layer analysis of compounds is the detection of investigated substances including drugs. The separated substances by thin-layer chromatography (TLC) can be detected by the following methods:

- Physical (individual colour of substance or fluorescence of substance in UV light);
- Chemical (coloured reactions of separated substances with visualizing reagents);
- Physicochemical (e.g., the application of isotopes as visualizing reagent);
- Biological (the application of biodetectors)

Many drugs are active in the range of UV light and can be directly detected and determined on chromatographic plate, for example, by densitometric analysis, in short or long wavelength UV light. The visualizing reagents have the special significance to detect separated compounds on thin layers. At last, the sample spots get analyzed through a suitable method for the sample, such as UV light, KMnO4 stain, and iodine staining.

## RESULT:

TLC has been used to quantitatively monitor the purity of several drugs, including sedatives, antihistamines, analgesics, tranquilizers, and steroids. As the solvent slowly travels up the plate, the different components of the dye mixture travel at different rates and the mixture is separated into different coloured spots. TLC is used in the identification, purity testing and determination of the concentration of active ingredients, auxiliary substances and preservatives in drugs and drug preparations, process control in synthetic manufacturing processes.
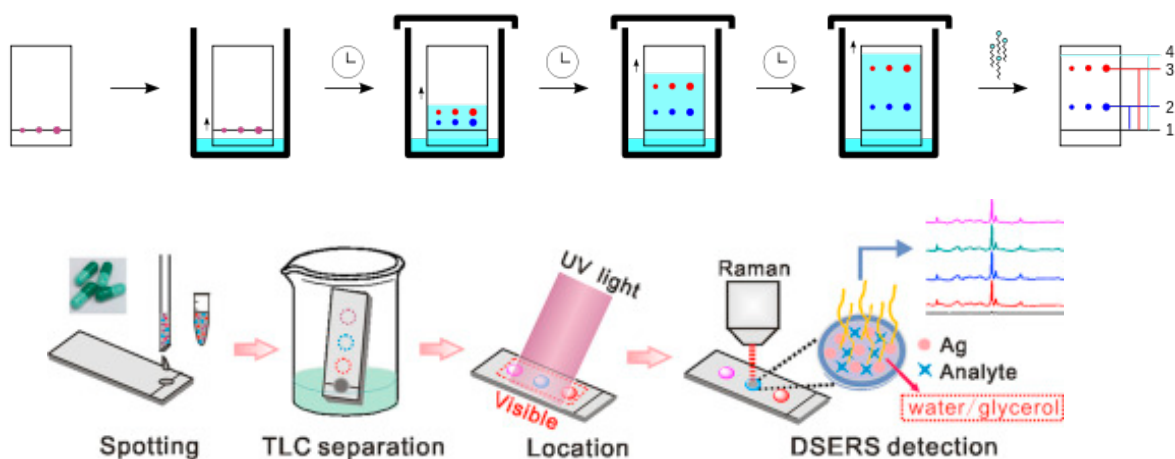


## CONCLUSION:

TLC is a popular and widely used technique for separation and quantitative and qualitative analysis of a great variety of the compounds. Drug identification strategies, followed by effective interventions, help prevent further illicit drug use and delinquency. Drug testing can be a constructive means of helping youth overcome denial of their substance abuse. Drug testing can be a constructive

means of helping youth overcome denial of their substance abuse. As a part of intervention, drug testing can be used to help youth achieve and maintain recovery and curtail other deviant behaviors. Over time, effective drug identification will help juvenile justice agencies achieve the goals of a balanced approach including community protection, youth accountability, and competency development.