

# THIN LAYER CHROMATOGRAPHY APPLICATION FOR ALKALOIDS



**Chromatography: It is a distinction method that allows the separation of substances of different structure, which form a chemical mixture, based on the distribution balances between the mobile and the other two fixed phases, but also the qualitative and quantitative analysis of these substances.**

**Stationary Phase:** It is a phase of adsorbent which is homogeneously coated on a plate.

**Adsorbent:** They are substances that have the ability to hold the materials on the surface and form the stationary phase.

(silikagel,  $\text{Al}_2\text{O}_3$ , kieselguhr, cellulose, sakkaroz, dextran gels).


**Mobile Phase:** It is the solvent system which enables the separation of the substances on the stationary phase depending on the adsorption balance and resolution.

**Start:** It is the point where the samples and standards are applied. It should be at a distance of 1.5 cm to the bottom and side edges of the plate.


**Front:** Recently point reached by solvent.

$$R_f = \frac{\text{Distance of stain center to start}}{\text{Distance between start and fronte (distance of development)}}$$

The Rf value is between 0 and 1.



**Development event:** It is the phenomenon of separating the compound in the mixture by moving the mobile phase forming solvent in the adsorbent layer.



## Preparation of Plate

Mix 10 g of the adsorbent with 20 ml of water and shake well.

It is poured into the hopper and the plates that have been previously cleaned are coated with adsorbent.

Plates are allowed to be activated for 30 minutes in 110 ° C oven.

Used adsorbent in the preparation: KieselG



# Preparation of Chromatography Tank and Solvent System

The solvent system mixed in certain proportions is placed in the appropriate amount and waited for the filter paper onto tank surface is saturated with solvent system.

**Solvent system: chloroform:methanol: ammonia %10  
( 80 : 20 : 1 )**



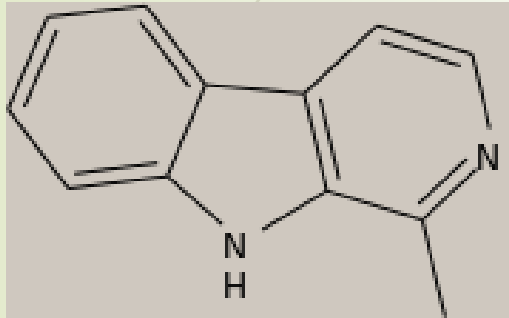
**Plant Name: *Peganum harmala***  
**Family: Zygophyllaceae**



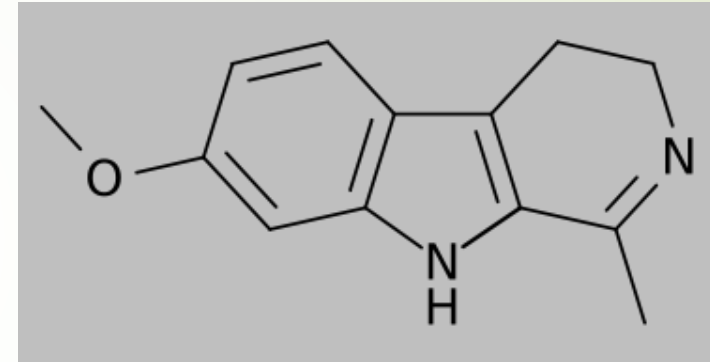


# Standard Substances

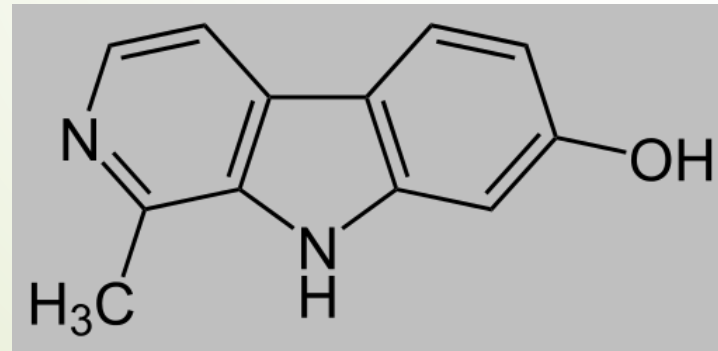
## HARMANE



## HARMALINE




## HARMOL






# Extraction

- ➔ **1 g into 10 ml of methanol was added and boiled weighed drug. Filter through the filter paper.**
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## Application of standard substance and extract to plate

- ➔ **The standard and extracts are applied to the starting point of the TLC plate with the help of a capillary of suitable thickness.**
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## Carrying the solvent system on the plate

Standard substances and sample solution are applied with starter capillary. The plate developed with the appropriate solvent system is removed from the tank to arrive solvent front and dried.

The start level should not be submerged in the liquid in the tank and should not sink.



# Advantages of TLC

- **Less equipment is required to implement.**
  - **In a short time the result is obtained.**
  - **Even the little sample results taken.**
  - **It is cheaper.**
  - **The equipment is simple and easily accessible.**
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