THIN LAYER CHROMATOGRAPHY APPLICATION FOR ALKALOIDS

CHROMATOGRAPHY:

IT IS A METHOD THAT ALLOWS THE SEPARATION OF DIFFERENT CHEMICAL SUBSTANCES IN A MIXTURE DUE TO DIFFERENT DISTRIBUTION RATES BETWEEN THE MOBILE AND STATIONARY PHASES AND QUALITATIVE AND QUANTITATIVE ANALYSIS OF THESE SUBSTANCES AS WELL.

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, Al_2O_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 of the substances.

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

Front: The point where the mobile phase reaches at the top of the plate.

$$Rf = \frac{\text{Distance of the center of the spot to start}}{\text{Distance between start and front (distance of development)}}$$

The Rf value is between 0 and 1.

- **DEVELOPMENT EVENT:** IT IS THE PHENOMENON WHICH THE MOBILE PHASE RISE UP THE PLATE AND SEPERATE THE COMPOUNDS IN THE MIXTURE.

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.

ADSORBENT USED FOR THE PREPARATION: KIESELGEL (SILICA GEL)

PREPARATION OF CHROMATOGRAPHY TANK AND SOLVENT SYSTEM

THE SOLVENT SYSTEM MIXED IN CERTAIN PROPORTIONS IS POURED INTO THE TANK AND WAITED FOR THE TANK TO BE SATURATED WITH THE 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 DRUG IS PUT INTO A FLASK, 10 ML OF METHANOL IS ADDED AND BOILED. THE EXTRACT IS FILTERED THROUGH THE FILTER PAPER.

APPLICATION OF STANDARDS AND EXTRACT TO PLATE

- THE STANDARDS AND EXTRACT ARE APPLIED TO THE START POINT OF THE TLC PLATE USING A CAPILLARY OF SUITABLE THICKNESS.

DEVELOPMENT OF THE SOLVENT SYSTEM ON THE PLATE

STANDARDS AND SAMPLE ARE APPLIED WITH CAPILLARY. THE PLATE IS DEVELOPED WITH THE APPROPRIATE SOLVENT SYSTEM AND REMOVED FROM THE TANK WHEN THE SOLVENT ARRIVED TO THE FRONT, THEN THE PLATE IS DRIED.

THE HIGHT OF THE START POINT SHOULD NOT BE UNDER THE LEVEL OF MOBILE PHASE IN THE TANK.

ADVANTAGES OF TLC

- LESS EQUIPMENT IS REQUIRED FOR THE APPLICATION.
- THE RESULT IS OBTAINED IN A SHORT TIME.
- THE RESULT CAN BE SEEN EVEN WITH THE SAMPLES AT SMALL QUANTITIES.
- IT IS A CHEAP METHOD.
- THE EQUIPMENT IS SIMPLE AND EASY TO ACCESS.