

## **(8): Separation of a mixture of phenols by thin layer chromatography (TLC)**

### **The idea of the experiment:**

Separation of a mixture of phenols (colorless compounds) by thin layer chromatography.

Observing the separated spots can be performed using:

- 1- UV light.
- 2- An iodine (I<sub>2</sub>) chamber. Iodine sublimates and will absorb to organic molecules in the vapor phase.

### **Materials and tools used:**

Thin layer (a sheet of glass coated with silica gel). Phenols : phenol, catechol, pyrogallol.

Unknown mixture, two mobile phases: 1- (hexane 5: 2ethylacetate),

2- (ethyl acetate 2: 5 dichloromethane ), iodine.

### **Procedure:**

- 1- Draw a line (in pencil not pen) across the bottom edge of the plate 1 cm up from the bottom.
- 2- Spot three spots along the line drawn on the plate.
- 3- Pour 10 ml of mobile phase in the jar and leave it few minutes to help to saturate the atmosphere with solvent vapor.
- 4- Put the plate inside the jar.
- 5- Remove the plate and mark the solvent front with a pencil.
- 6- Allow the plate to dry for a few minutes.
- 7- Calculate  $R_f$  for each substance.
- 8- Compare between  $R_f$  values of an unknown mixture and the known phenols.
- 9- Determine the components of an unknown mixture of phenols.
- 10- Repeat the same steps with another mobile phase and compare between  $R_f$  values of two mobile phases.