(7): Separation of a mixture of dyes by thin layer chromatography (TLC)

The idea of the experiment:

Separation of a mixture of dyes by thin layer chromatography. TLC can be used to support the identity of a compound in a mixture when the R_f of a compound is compared with the R_f of a known compound.

Materials and tools used:

Thin layer (a sheet of glass coated with silica gel). Dyes: Bromothymol blue, Bromophenol blue, Phenol red. Unknown dye mixture, Mobile phase: (Ammonia: Ethanol: Butanol) (1: 1: 3)

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 dye and the known dyes.
9- Determine the components of an unknown dye mixture.