CLASS XII
CHEMISTRY PRACTICAL
CONTENT BASED EXPERIMENTS

Experiment Number: **09** **Date:** ----------

PAPER CHROMATOGRAPHY

Aim: To separate coloured compounds from the given mixture (containing red and blue inks) by ascending paper chromatography and compare the Rf values of the components present.
Requirements: Chromatography paper, gas jar, capillary tube, ruler, pencil, mixture of inks, distilled water etc.
Theory: The coloured components present in the ink mixture can be separated placing 1-2 drops of the mixture on one end of the chromatography paper and eluting it using distilled water as the mobile phase. The Rf value is calculated as follows:

$$R_f = \frac{\text{Distance travelled by the coloured component}}{\text{Distance travelled by the elute (Distilled water)}}$$

Procedure:

1. Take a chromatographic paper (Quantitative filter paper) and draw a reference line 1 inch away from one end of the paper using a pencil and ruler.
2. Cut the end of the paper like a wedge.
3. Using a capillary tube place 1-2 drops of the ink mixture at the centre of the reference line drawn. This process is called spotting.
4. The paper is then fixed over a gas jar in which distilled water is taken in such a way that the tip of the chromatography paper just touches the water.
5. After about 20-30 minutes, the chromatography paper is removed. Pencil mark is made to note the distance travelled by elute (Water).
6. Dry the chromatography paper and calculate Rf values.

Precautions:

1. A fine capillary tube should be used so that the diameter of the spot is small.
2. The gas jar should not be disturbed.
3. The chromatography paper should not touch the sides of the gas jar.
4. The ink spot should lie above the level of elute in the gas jar.

Result:

1. The Rf value of the blue component =

2. The Rf value of the red component =

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Experiment Number: **10** **Date:** ----------

PREPARATION OF FERRIC HYDROXIDE "SOL"

Aim: To prepare a colloidal dispersion (sol) of Ferric Hydroxide.

Requirements: Pure Ferric Chloride solution in distilled water, 250 ml Conical flask, Burette, tripod stand, wire gauze, Bunsen burner, etc.

Theory: When Ferric Chloride solution is hydrolysed with water under suitable conditions, it gives wine red ferric hydroxide sol as per the following chemical equation.

$$\mathbf{FeCl_3 + 3H_2O \rightarrow Fe(OH)_3 + 3HCl}$$

The ferric Hydroxide sol is hydrophobic in nature.

Procedure: First of all clean the conical flask thoroughly, first using few drops of con. HNO_3 followed by washing several times with tap water and finally with distilled water. Take about 50 ml of distilled water in the conical flask and boil the water over a Bunsen flame. Take about 5-10 ml of ferric chloride solution in clean burette and add it drop wise to the boiling water**.** Continue heating until wine red colour ferric hydroxide sol forms.

Precautions:

1. Conical flask and burette should be thoroughly cleaned to avoid coagulation of the sol due to presence of impurities.
2. During addition of Ferric chloride solution, the water taken should be boiling continuously to obtain the desired result.
3. Since HCl is present in the sol prepared, it should not be kept for long period to avoid coagulation of the sol. (Submit the sol to the examiner as early as possible)

Result: Wine red coloured ferric hydroxide sol is prepared.

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