

Paper Electrophoresis

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Introduction

- ❖ The technique of paper electrophoresis is simple and inexpensive and requires only micro quantities of plasma for separation.
- ❖ The support medium is a filter paper
- ❖ The electrophoresis apparatus in its simplest form consists of two troughs to contain buffer solution, through which electric current is passed.
- ❖ Frequently used in isolating proteins, amino acids and oligopeptides.

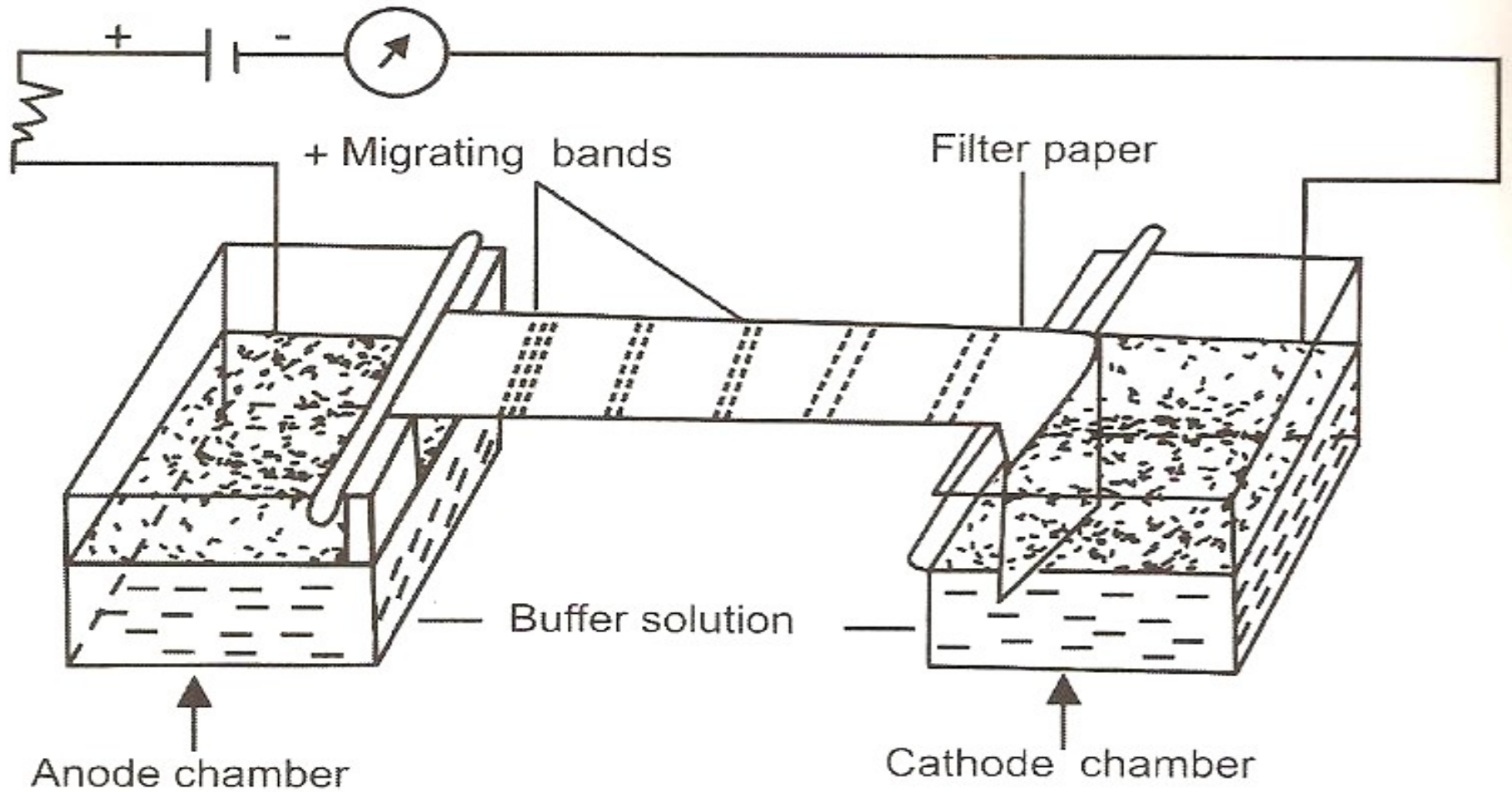


Fig. 28.1: Paper electrophoresis (one-dimensional)

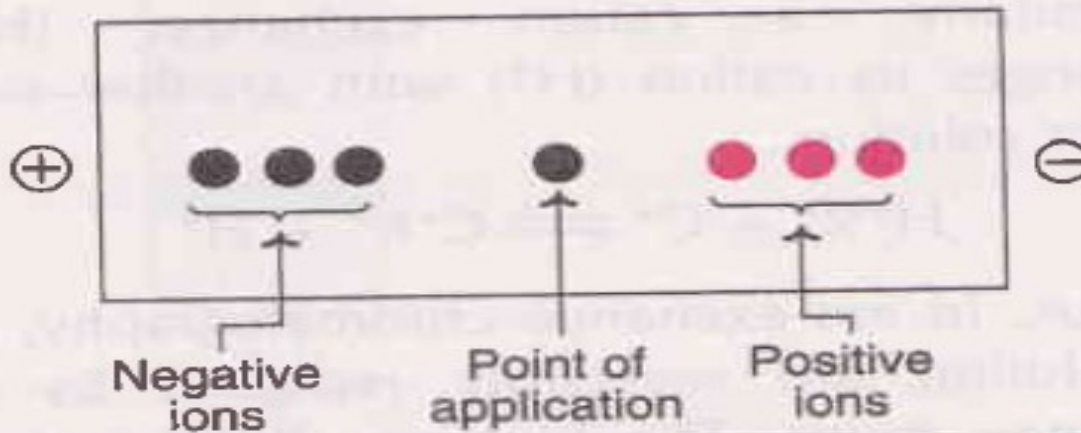
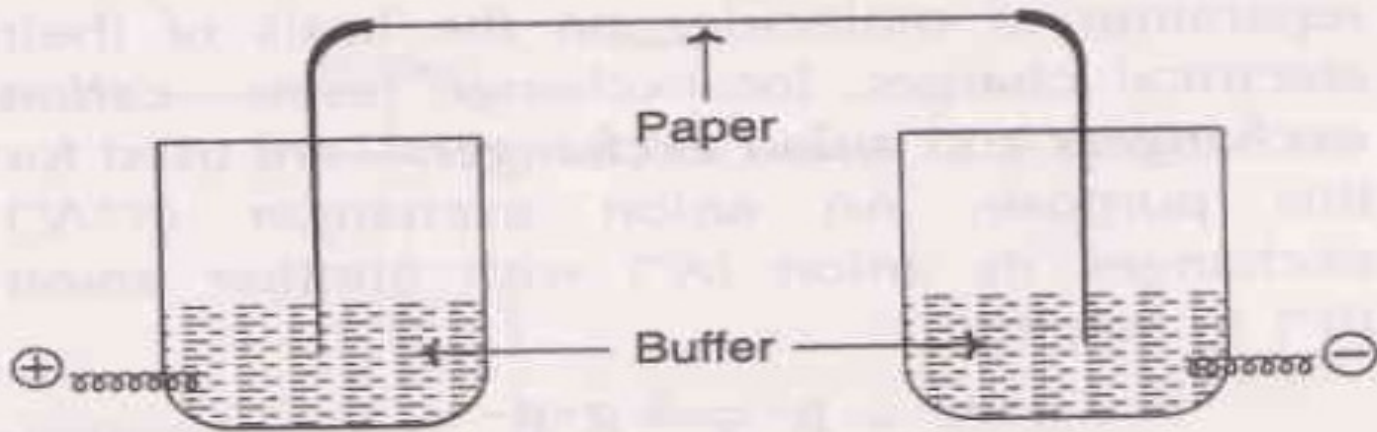


Fig. 41.7 : Diagrammatic representation of paper electrophoresis.

Procedure

- 1) A long strip of filter paper is moistened with a suitable buffer solution of the desired p H and the sample is applied transversely across the central part of the strip.
- 2) Ends are fixed to dip in buffer solutions in two troughs fitted with electrodes.
- 3) Electric field of about 20 volts/cm is established.
- 4) The charged particles of sample migrate along the strip towards respective electrodes of opposite polarity, according to net charges, sizes and interactions with the solid matrix.

Contd...

- 5) Homogeneous group of particles migrate as a separate band
- 6) The electrophoresis is carried out for 16-18 hours.
- 7) Separated Proteins are fixed to a solid support using a fixative such as Acetone or Methanol
- 8) Proteins are stained (**bromophenol blue**) to make them visible
- 9) The separated proteins appear as distinct bands
- 10) **Drawback**-long time interval and blurring of margins

Observation

- ❖ The different fractions appear as blue coloured bands across the filter paper starting from the moving boundary backwards.
- ❖ If a quantitative estimation is required for each fraction, the bands may be carefully cut and eluted, or the bands may be scanned optically in a densitometer.
- ❖ In human plasma five different bands can be identified on paper electrophoresis

THANK
YOU!

The image features the words "THANK YOU!" in a bold, red, 3D sans-serif font. The letters are arranged in two lines: "THANK" on top and "YOU!" below it. The background is a light green color with a subtle, white, swirling floral or vine pattern. A thick, dark green diagonal bar runs across the bottom right corner of the image. The overall style is clean and celebratory.

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