OCR B Biology A-level

PAG 06a - Chromatography

Flashcards

What is the purpose of chromatography?

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To separate different components in a sample.

State the factors affecting the rate of migration of different pigments.

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Solubility

Mass

Affinity to the paper

What is the formula of the RF value?

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Distance moved by pigment / Distance moved by solvent

What is the purpose of finding the RF value of a pigment?

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Experimental RF value can be compared to a standard value in a database to identify the pigment.

The standard value should be using the same paper and solvent.

Outline the procedure of using chromatography to separate photosynthetic pigments.

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1. Draw a pencil line 1cm above the bottom of the filter paper.
2. Add some acetone and use the mortar and pestle to grind up the leaf sample and release the pigments.
3. Use a capillary tube to transfer the pigment onto the pencil line.
4. Suspend the paper in the solvent so that the level of the liquid does not lie above the pencil line and leave until the solvent has run up the paper to near the top.
5. Remove the paper from the solvent and draw a pencil line marking where the solvent moved up to.
6. Calculate the Rf value for each spot.

State the hazards and precautions in this practical.

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Solvents are irritant and flammable. Keep away from naked flames, wear eye protection and avoid contact with skin.

Leaf extract may be a biohazard. Wash hands after use.

Why should the final locations of the pigments be marked?

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The pigments may also disappear as the solvent dries.

How can chromatography be used to separate amino acids?

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Same method as leaf extract, except spray the chromatography paper after the solvent had run with ninhydrin solution to stain each residue purple.