OCR (B) Biology GCSE

PAG 08: Osmosis

Practical Notes

Osmosis

Aim

Investigate osmosis in plant tissue by measuring the change in mass of potato cylinders.

Equipment

- Potato
- Cork borer
- Scalpel
- Ruler
- White tile
- Measuring cylinder
- Distilled water
- Sucrose solutions
- Beakers
- Marker pen
- Electronic balance
- Paper towel
- Forceps

Method

1. Label 7 beakers with the concentrations of sucrose: 0.0M, 0.1M, 0.2M, 0.3M, 0.4M, 0.5M, 0.6M.
2. Use a cork borer to form 7 potato cylinders and trim each to a length of 50 mm with a scalpel and ruler.
3. Assign one potato cylinder to each concentration of sucrose.
4. Weigh each potato cylinder and record the masses in a table (as seen below).
5. Use a measuring cylinder to transfer 50 cm^3 of each solution to its corresponding beaker (use distilled water for 0.0M).
6. Place the potato disc into their corresponding beaker, making sure it is submerged.
7. Start timing for 30 minutes.
8. Remove the potato cylinders from the solution and blot dry with a paper towel.
9. Weigh each potato cylinder again and record the new mass in the table.
10. Calculate the percentage increase or decrease in mass.

Concentration of sucrose (M)	Initial mass (g)	Final mass (g)	Change in mass (g)	Percentage change in mass (%)

Sources of Error

Potato cylinders taken from different parts of the plant may have different water potentials.
Equilibrium may not have been fully reached when the cylinders are weighed a second time.

Risk Assessment

The scalpel, knife and cork borer are sharp. Handle carefully to avoid cutting yourself.