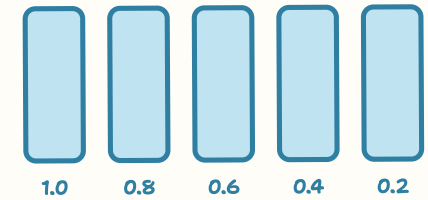
Required Practical 3: Water Potential

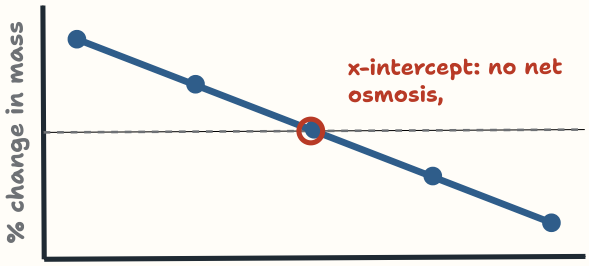
Use sucrose solutions and potato mass change to find the water potential of plant tissue.

Dilution series, then a calibration curve for the potato



sucrose (mol dm-3)
diluted from stock with distilled water

same potato cylinders, same time; blot dry, weigh before and after



sucrose concentration
same water potential as the tissue

Key terms

dilution series	a range of concentrations made by diluting a stock solution with distilled water.
percentage change in mass	change in mass / start mass x 100.
calibration curve	a graph of % change in mass against concentration.
x-intercept	where the line crosses zero change: no net osmosis.
water potential of the tissue	equal to the solution at the x-intercept; read it from a table of solution values.
controls	same size cylinders, same time, blot dry before weighing.

I can...

- [ ] Production of a dilution series of a solute to produce a calibration curve to identify the water potential of plant tissue

EXAM TRAP

Calculate percentage change, not grams. Read the x-intercept (concentration where change is zero), not the y-intercept. Control size and time, and weigh before and after.

4 marks: what earns them

1. Make a dilution series (range of concentrations) of a solute such as sucrose from a stock solution, using distilled water
   Not: different solutions with no range of concentrations; salt water with no range
2. Put same-sized potato cylinders in each solution for the same time; measure mass before and after, blotting dry first
   Not: mass measured only once; no control of size or time
3. Calculate the percentage change in mass for each concentration
   Not: change in mass in grams only
4. Plot percentage change in mass against concentration; the concentration where the line crosses zero (x-intercept) has the same water potential as the tissue
   Not: reading the y-intercept; where the potato is biggest

Remember

Dilute, soak, blot, weigh.
Percentage change in mass.
Zero crossing on the x axis.

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