

Edexcel Biology International A-level

CP 10 - Factors affecting photosynthesis

Flashcards



What are the types of pigments found in chloroplasts?



What are the types of pigments found in chloroplasts?

Primary pigment and accessory pigments.



What is the purpose of having different accessory pigments?



What is the purpose of having different accessory pigments?

To absorb a wider range of wavelengths of light.



Why is sodium hydrogen carbonate added?



Why is sodium hydrogen carbonate added?

To supply carbon dioxide for photosynthesis.



What does the volume of gas produced indicate?



What does the volume of gas produced indicate?

It is assumed to be oxygen, so the volume of gas is proportional to the rate of photosynthesis.



What are the controlled variables of this practical?



What are the controlled variables of this practical?

Light intensity (distance from lamp)

Amount of sodium hydrogen carbonate

Time allowed for gas collection

Temperature



How is the light wavelength controlled?



How is the light wavelength controlled?

By using different coloured filters to cover one side of the beaker close to the lamp, and covering the other side using aluminium foil.



Outline the procedure to this practical.



Outline the procedure to this practical.

1. Place a piece of pondweed in a beaker of water.
2. Cover one side of the beaker with the aluminium foil, and cover the other side of the beaker with one of the light filters.
3. Add half a spatula of sodium hydrogencarbonate to the water to provide carbon dioxide. Leave for 5 minutes.
4. Place the bench lamp a set distance from the beaker.
5. Set up the photosynthometer. Leave for 5 minutes.
6. Record the volume of gas produced during this time.
7. Replace the filter with another colour of filter and repeat the experiment



Why is the greatest volume of gas produced when no filter is used?



Why is the greatest volume of gas produced when no filter is used?

Because the plant is exposed to all wavelengths of light, so more wavelengths can be absorbed.



Why is the smallest volume of gas produced when a green filter is used?



Why is the smallest volume of gas produced when a green filter is used?

Because green light is mostly reflected and not absorbed, hence why chloroplasts appear green.

