

OCR A Biology A-level

PAG 04 - Rates of Enzyme-Controlled Reactions

Flashcards



What are the four factors affecting rate of enzyme reaction?



What are the four factors affecting rate of enzyme reaction?

Enzyme concentration

Substrate concentration

Temperature pH



How can you measure the rate of reaction using hydrogen peroxide and catalase?



How can you measure the rate of reaction using hydrogen peroxide and catalase?

Measure the volume of oxygen gas produced in a given time



State the word equation for the action of catalase.



State the word equation for the action of catalase.

Hydrogen peroxide \rightarrow Oxygen + Water



What are the controlled variables of this practical?



What are the controlled variables of this practical?

Enzyme volume and concentration

Substrate volume and concentration

pH



State the hazards and safety precautions involved in this practical.



State the hazards and safety precautions involved in this practical.

Hydrogen peroxide is an irritant. Wear eye protection and avoid contact with skin.

Take care in handling hot water baths, and wash hands after handling peas/ source of catalase.



Outline the procedure to find the effect of enzyme concentration on rate of reaction using amylase.



Outline the procedure to find the effect of enzyme concentration on rate of reaction using amylase.

1. Put drops of iodine solution into each well of a spotting tile.
2. Make a serial dilution of amylase to produce several concentrations.
3. Add the same concentration and volume of starch to the first boiling tube. At the same time, start the timer.
4. Use a dropping pipette to put a drop of this mixture into one of the wells containing the iodine solution at regular intervals.
5. Time how long it takes for the colour to no longer turn blue-black.
6. Repeat at least 2 more times and calculate the mean time taken.
7. Repeat the experiment for each concentration of amylase.



What are the controlled variables of this practical?



What are the controlled variables of this practical?

Temperature

pH

Substrate volume and concentration

Volume of enzyme added

