

Edexcel Biology

International A-level

CP 18 - Production of amylase in germinating cereal grains

Flashcards



What is the role of gibberellin during germination?



What is the role of gibberellin during germination?
It is secreted by the embryo, then it diffuses to the aleurone layer of the endosperm to stimulate the production of amylase. Amylase hydrolyses starch to maltose.



How is the effect of gibberellin concentration on amylase production investigated?



How is the effect of gibberellin concentration on amylase production investigated?

1. Dilute gibberellin to produce several concentrations.
2. Cut seeds in half, use only the half with the endosperm.
3. Dip in sodium hypochlorite solution and wash with water.
4. Place seeds in each gibberellin solution and leave.
5. Place seeds in a petri dish and starch agar, and leave for 12-48 hours.
6. Pour potassium iodide onto the plates and measure the clear zone.



What does the zone of inhibition indicate?



What does the zone of inhibition indicate?

The clear zone indicates that starch has been hydrolysed by amylase (hence not stained by iodine). The larger the zone of inhibition, the higher the amylase concentration.



Why are the seeds placed in sodium hypochlorite solution?



Why are the seeds placed in sodium hypochlorite solution?

To sterilise the seeds.



What is the effect of gibberellin concentration on amylase production?



What is the effect of gibberellin concentration on amylase production?

Increasing gibberellin concentration increases the area of the clear zone, indicating an increased production of amylase and more starch hydrolysed.



What are some sources of error in this practical?



What are some sources of error in this practical?

The existing gibberellin and amylase content of the seeds may be different.



What are some controlled variables of this practical?



What are some controlled variables of this practical?

Time allowed to soak in gibberellin

Time left on starch agar plate

Source / age of seeds

