Edexcel (B) Biology A-level

CP04 - Sucrose concentration and pollen tube growth

Flashcards

What is the pollen tube?

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It is a path through the stigma, made by digestive enzymes, down which the pollen grain travels to reach the embryo sac, and hence fertilise the ovum.

What structure controls the production of these enzymes?

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Pollen tube nucleus.

How is an eyepiece graticule calibrated to make measurements?

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By using a stage micrometer.

What are the controlled variables of this practical?

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Environment - humid chamber

Volume and content of nutrient salt solution

Volume of sucrose solution

Time allowed for growth

Outline the procedure to this practical.

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1. Dilute the stock sucrose solution to several set concentrations.
2. Place a moist piece of filter paper into a petri dish to form a humid chamber.
3. Put a few drops of sucrose solution and an equal volume of mineral salt medium onto a clean microscope slide.
4. Use a mounted needle to rub the anther of the flowers so they shed some pollen onto the microscope slide.
5. Place the slides into the petri dish until it is time to observe them.
6. Start the stop clock. Place the slides under the microscope and use a calibrated eyepiece graticule to measure pollen tube growth.

Why should a cover slip not be used?

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To allow oxygen to reach the pollen, preventing conditions from being anoxic.