

AQA Biology A-level

RP02 Calculating Mitotic Index using Plant Cells

Flashcards

Where in plants can cells undergoing mitosis be found?

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Meristem tissue at shoot and root tips.

What is the mitotic index?

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The ratio of cells undergoing mitosis to the total number of cells in a sample.

Outline the procedure to prepare a root tip slide.

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1. Warm 1M HCl to 60°C in a water bath.
2. Cut a root tip using a scalpel and add to the HCl. Leave for 5 minutes.
3. Remove from HCl and wash with distilled water.
4. Cut the tip of the root tip sample and place on a slide.
5. Add a few drops of stain to make chromosomes visible.

State the formula for the mitotic index.

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$$\text{Mitotic index} = \frac{\text{Number of cells with visible chromosomes}}{\text{Number of cells in sample}}$$

State the hazards and precautions for reagents used in this procedure.

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HCl - corrosive, avoid contact with skin, wear eye protection

Toluidine Blue O stain - irritant, avoid contact with skin, wear eye protection

Scalpel - cut away from fingers