

Faculté des sciences exacte et science de la nature et de vie
Département de Science de la nature et de vie
Module Méthode de travail 1 et terminologie
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Faculty of Exact Sciences and Natural and Life Sciences
Department of Natural and Life Sciences
Module: Work Methodology 1 and Terminology
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Name and Surname :

Date:

Group:

Course name:

Laboratory Report: Study of a Plant Cell Using an Optical Microscope

1. Introduction

The objective of this experiment is to observe the structure of a plant cell using an optical microscope. This study aims to identify the main cellular components and understand their organization.

2. Materials and Methods

Materials used:

- Cover slip and glass slide
- Optical microscope
- Stain (e.g., methylene blue or iodine solution)
- Onion or another plant sample

- Scalpel or knife
- Pipette

Method:

1. Carefully peel a thin layer of onion epidermis using a scalpel.
2. Place the sample on the glass slide.
3. Add a drop of stain to enhance the visibility of cellular structures.
4. Cover the sample with a cover slip.
5. Observe under the microscope, starting with low magnification and gradually increasing.

3. Results

During the observation, the following structures were identified:

- **Cell wall:** A rigid structure surrounding the cell.
- **Cytoplasm:** A visible mass within the cell.
- **Nucleus:** A spherical structure stained by the dye.

- **Vacuole:** A large clear cavity occupying most of the cell.

A scientific sketch of the observed cell is included (see Figure 1).

4. Discussion

The results align with the typical structure of a plant cell. The cell wall, absent in animal cells, provides rigidity and protection to the cell. The vacuole plays a role in storage and maintaining osmotic pressure. The use of stains allowed for clear differentiation of internal structures.

5. Conclusion

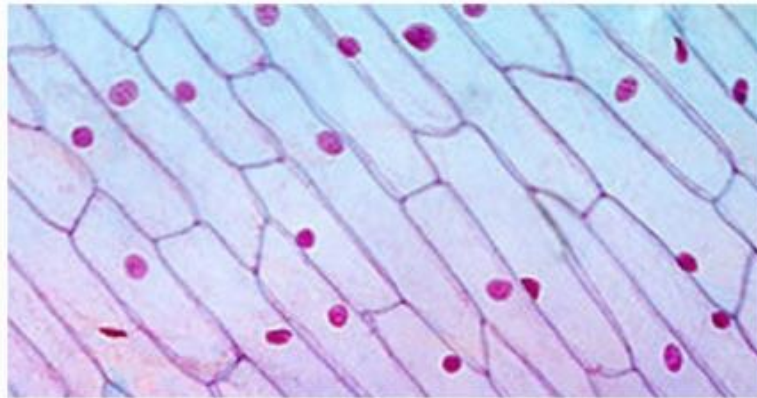
This experiment successfully highlighted the key characteristics of a plant cell. It confirmed the importance of the cell wall and vacuole in cellular function.

6. Appendices

- Scientific drawing of the observed plant cell.
- Table of magnifications used.

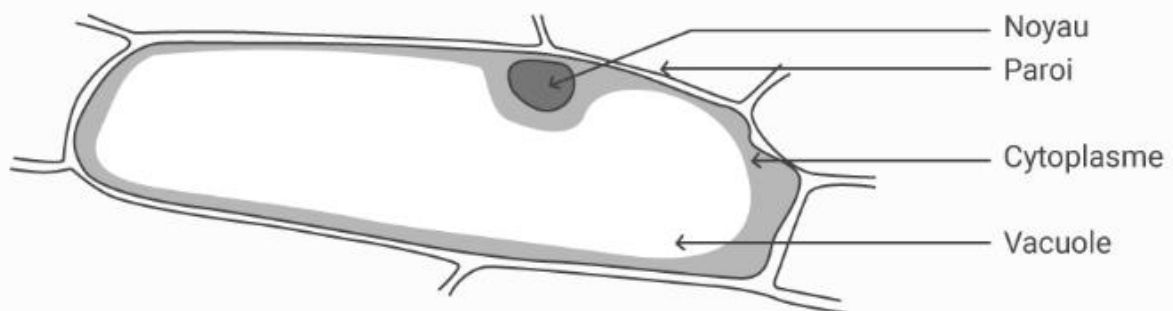
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Dessin d'observation d'une cellule de bulbe d'oignon rouge

Microscope optique x100



Here is an example of a table showing the magnifications used to observe a plant cell with an optical microscope, as well as the details visible at each level:

Objective	Objective Magnification	Total Magnification (Objective × Eyepiece)	Details Observed
Low Power	4×	40×	General view of the sample, cell outlines.
Medium Power	10×	100×	Cell shapes, cell wall clearly visible.
High Power	40×	400×	Internal details such as the

			nucleus and vacuoles.
Very High Power*	100× (oil immersion lens)	1000×	Fine structures if applicable, such as organelles (rarely visible with a standard optical microscope) .

Notes :

1. Total magnification is calculated by multiplying the magnification of the objective by that of the eyepiece (commonly 10×).
2. An oil immersion lens (100×) requires immersion oil to prevent light diffraction.

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