

12. ONION CELLS

Team Croatia
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Clarifying-

did the cells change color?

concave convex and what causes it? was the shape of the vacuoles observed and how classified?

was the number of dissociating ions the same for each aqueous solution? (discrete ions in a formula unit of the substance)

temperature

was plasmolysis reversible?

did deplasmolysis happen?

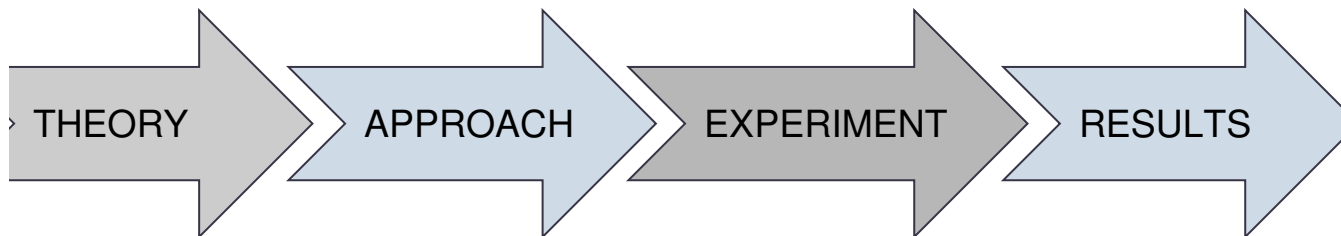
what is the difference with blue and violet

pressure - would it speed up?

PROBLEM TEXT

Investigate the effects of various salts on the structure of onion cells.

- important parts: **changing salts and quantitative structure analysis !**
- problem solved: partially



THE SOLUTION: THEORY

Pros:

- defined environment states correctly
 - explained plasmolysis accurately
 - important for experiment understanding
 - water potential
 - useful considering their parameters
- proposed hypotheses on the model
 - clearly correlating with theory

Cons:

- missed mentioning molarity, deplasmolysis
 - important for phenomenon
 - useful considering their parameters
- lack of understanding of

THE SOLUTION:

EXPERIMENT

Cons:

Pros:

- most relevant parameters
- 4 concentrations

- possible error - small sample size
- randomly picking cells
 - - could have caused inefficiency
- molar or mass
 - maximizing productivity
- selected method of measuring
 - leading to inaccuracies
- how did he know the extent of plasmolysis?

repetitions, distribution?

THE SOLUTION: RESULTS AND CONCLUSION


Cons:

Pros:

- graphs showing dependence on concentration
- different anions
- missed looking at the effect of **disociating ion count** in a formula unit of the salt
 - large error
 - caused a difference in solute particle quantity
- missed looking at:
 - **shape of vacuoles**
 - colour change
 - important - problems text
 - missing link with theory

POINTS FOR DISCUSSION

- colour change -> cause -> deriving results ?
- dependance of concentration on dissociating ion count
- number of connecting points of membrane and wall
 - correlation with plasmolysis speed
 - reversibility ?
- counting method
- biggest achievable plasmolysis - dependance



although the theory was good, there was not much of a link of how they proved most of their described theory in the experiment

High temperature increases the energy and therefore the movement of molecules, increasing the rate of diffusion

colour difference caused by pigment - direct indicator of lost water quantity

THANK YOU!

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