

Task: Determine the factors that damage cells containing bactecyanin pigment.

Topic: Cell Membrane

Type: Narrative Essay

Length: 1 page

Formatting: MLA

Requirements:

Describe your experiment with bactecyanin pigment, review important details about the specimen and corroborate your findings.

Name

Instructor

Course

Date

Cell membrane

Objective

This practical experiment was carried out to determine the factors that damage the cells that contain bacteriochlorophyll pigment. The idea about this experiment emerged during the previous laboratory experiment using the beetroot seeds. The seeds stained the hands when they were stressed.

Comment [AwfulEssa1]: You don't want to name or talk about the experiment?

Comment [AwfulEssa2]: Stressed in what way? I didn't know hands could get stressed.

Introduction

In the cells of beetroot plant, there is a pigment that gives it its red color. The pigment can drain from the cell like an ink. This situation can help in determining which factors can influence the integrity of the cells. Beetroot pigments are not stable when the temperature is high. A number of parameters such as the oxygen concentration, the pH, and the length of heating also affect the beetroot cells.

Comment [AwfulEssa3]: Missing something here....

Comment [AwfulEssa4]: Not needed.

Materials

The materials used were: scalpel, test tubes, water, refrigerator, acetone or alcohol, forceps, beaker, spectrophotometer, graduated cylinder and hot plate.

Comment [AwfulEssa5]: Wrong punctuation mark.

Comment [AwfulEssa6]: Best to add a comma here, if you don't know.

Methods

The assumption of this practical experiment was that the increase in temperature and addition of organic solvent would lead to the leakage of the pigment in the beetroot cell.

The beet was cut into three cubes of equal sizes using a scalpel. After washing the cut pieces, they were placed in a test tube filled with water. The tubes were then placed at different temperatures. After some time, the beetroots were removed, and measurements taken using a spectrophotometer at 460nm wavelength.

Comment [AwfulEssa7]: Do you like one sentence paragraphs a lot?

Comment [AwfulEssa8]: I don't think you got the right preposition.

In the second part, the beetroot was cut into two cubes of the same size using a scalpel. After washing the beets, they were placed into separate test tubes. Each tube contained acetone of different concentration. The observation was then done on the remaining liquid after removing the beetroot pieces. The color was measured on a scale of 1 to ten at 460nm wavelength spectrophotometer.

Results

The color of the pigment leaked in from the cells. In the first test tube of the first part of the experiment, treatment temperature was 40°C, and the absorbance was observed to be 0.04nm and color intensity as 1. The second one was at 50°C, and the absorbance was observed to be 0.03nm and color intensity as 0. In the third test tube, the temperature was -50°C and absorbances were 0.64nm and color intensity as 8.

In the second part of this experiment the results from the first test tube that contained 1% acetone was 3 for light intensity and 0.05 for absorbance. The second test tube contained 50% acetone, and the results were 7 for light intensity and 0.47 for absorbance.

Discussions and Conclusions

The beetroot cell could withstand a small amount of stress, but extreme changes in temperature and organic solvent concentration damaged the cells. The damage led to leakage of the red pigment.

Increase in temperature is known to weaken the cell membrane structure. Low temperature also decreases the fluidity of the membrane. Therefore, there is a certain temperature where the cell membrane functions normally.

When the temperature is high, many betalain molecules are lost from the vacuole as compared to when the temperature is low. At high temperature, the betalain molecules are converted into kinetic energy, which leads to release of the red pigment through the cell membrane into the water. The pigment molecules are saturated in the vacuole of the cell, their instability due to temperature, or any stress may lead to their leakage through the cell membrane.

Comment [AwfulEssa9]: Comma is missing...

Comment [AwfulEssa10]: I know you want to write in a scientific tone, but that's no reason to cut out so many articles.

Comment [AwfulEssa11]: Don't need to omit another article here either.

Comment [AwfulEssa12]: Comma not needed.

Overall Impression

The write-up was average. There actually was not so many mistakes, but some minor discrepancies along the way that made reading it a bit troublesome.