Osmosis in Red Onions

Initial Red Onion Hypertonic Solution

**Lab Packet Set Up**

**Cover Page: Page 2:**

Lab Title

Your Name, Partner Name

Date

Period

Problem Statement:

Hypothesis

Variables:

* MV
* RV
* 2CV

Groups:

Procedure:

Hypotonic Solution Analysis Questions

1.

2.

3.

4.

5.

Conclusion:

**Page 3:**

**Name, date and title: *Write onto cover page***

**Problem Statement: *Copy onto Cover page***

What is the effect of immersing a plant cell in 10% sugar solution on the plant cell’s vacuole?

**Hypothesis: *Create your own hypothesis based on the problem statement.***

Be sure to include:

* Proper hypothesis format (If…then…because)
* A plausible scientific reason, based on what you have learned in this unit
* Scientific vocabulary from this unit

**Materials: *DO NOT COPY MATERIALS***

# Red onion skins 1 Slide

1 Microscope 1 Eye dropper

10% Sucrose solution 1 Cover slip

50 mL Tap water 50 ml beaker

**Variables: *Write down all variables. Hint: use the procedure to identify them***

**Manipulated (Independent):**

**Responding (Dependent):**

**2 Controlled:**

**Groups: *Write down both groups. Hint: use the procedure to identify them***

**Controlled**

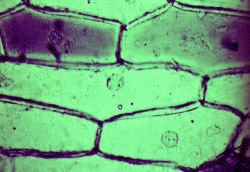
**Experimental**

**Procedure: *COPY PROCEDURE.***

1. Make a wet mount of a piece of red onion skin.
2. Follow standard microscope procedures.
3. Under high power make a diagram of a single cell as you see it. (use lab drawing rules). Add the following labels: large central vacuole, cytoplasm, nucleus, cell wall.
4. Add 10% sucrose solution by gradually dropping approximately 5 drops of sucrose on the slide to the side of the cover slip. “Pull” the solution through by placing a paper towel on the opposite side of the cover slip. Be careful not to make the slide too sloppy.
5. Wait 5 minutes and view. Make a second diagram of what you see in one cell and label it with the terms listed in step 3.
6. Add 7 or 8 drops of tap water to the slide on the side of the cover slip again and “pull” the water through with paper towel.
7. Wait 5 minutes and view. Make a third diagram and label the parts.

**Data Collection: *3 drawings—each drawing must be stamped by teacher—labeled with the following terms:***

* Large central vacuole



**Large central vacuole (w/ purple pigment)**

**Cytoplasm**

**Nucleus**

**Cell Wall**

Figure 1. Red Onion Organelle Locations

* Cytoplasm
* Nucleus
* Cell wall

1. Drawing of **one** initial red onion cell
2. Drawing of **one** **cell** immersed in a **hypertonic** solution
3. Drawing of **one cell** immersed in a **hypotonic** solution

**Analysis:**

1. Describe the cell and its contents initially. Use biological terms learned in class.
2. Describe the cell after it is flooded with sucrose solution. Use biological terms learned in class.
3. Why did this change occur? Use biological terms learned in class.
4. What is this term that describes this change in the cell?
5. Describe the cell after it is flooded with H2O again. Use biological terms learned in class.

**Argumentation: Discuss your findings using the “Claim Evidence Reasoning” rubric below**

|  |  |  |
| --- | --- | --- |
| **Argumentation (Conclusion) Attributes** | | |
| **Claim**  *Conclusive statement* | | Correctly answers the experimental question (or correctly states whether the hypothesis/prediction was correct). |
| **Evidence** | *Highest (hypertonic) data* | Discuss the trends in the vacuole of the hypertonic red onion |
|  | *Lowest (hypotonic) data* | Discusses trends in the vacuole of the hypotonic red onion |
| **Reasoning** | *Linking* | Explains how the evidence supports the claim |
|  | *Scientific Explanation* | Provides a plausible (possible) scientific reason that explains the trend seen in the data. |