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Osmosis and Diffusion Lab Report

Introduction:

Osmosis is an astonishing form of diffusion in which water moves through the cell. Water moves from a higher water concentration to lower water concentration. Water can only cross the membrane, not the solute. Hypotonic is the solution with the lower concentration. Hypertonic is the solution with the higher concentration. There must be a difference in the concentration of a solute on any side of the selectively permeable membrane in order for water to move. For a cell to survive, it is important that it maintains what is called the osmotic balance, which is needed for the cell to perform its functions, therefore osmosis is a fundamental process. In osmosis only water moves without the need to provide energy. Osmosis is a process that happens naturally, it can happen both internally and externally. For living beings externally is more important. It can occur in animal and plant cells.

Purpose:

The process of Osmosis was tested in this lab. We analyzed how the mass of Sucrose in the dialysis bag increased. This lab is helpful because it helps visualize the substances that can go through osmosis.

Hypothesis:

If a substance is added to a dialysis bag and later placed in water, then with time the mass of the dialysis bag will increase, therefore osmosis has occurred. While water is placed in a dialysis bag and then placed in water, then it's mass will remain the same.

Materials:

1. 4 Dialysis tubings
2. 4 Beakers
3. 20% Glucose Solution
4. 40% Glucose Solution
5. 10% NaCl Solution
6. 40% Sucrose Solution
7. Distilled water

Procedure:

1. Take 4 dialysis tubing
2. Fill dialysis tubing with the following
 - Tube 1:** 20 mL 20% Glucose Solution
 - Tube 2:** 20 mL 40% Glucose Solution
 - Tube 3:** 20 mL 10% NaCl Solution
 - Tube 4:** 20 mL 40% Sucrose Solution
3. Record the mass at 0 minutes.
4. Take 4 beakers
5. Label the beakers from 1-4 and then fill them with the following; Beakers 1,3 and 4 with half distilled water and beaker 2 with half fill of 40% Glucose Solution

6. Place each Tubing in its corresponding beaker
7. Put a timer for 45 minutes
8. After 45 minutes have passed, record your observations

Results:

	1. MASS	OF DIALYSIS	(gm)	4.
	1.	2.	3.	
Tubing Contains	20 mL 20% Glucose Solution	20mL 40% Glucose Solution	20 mL 10% NaCl Solution	20 mL 40% Sucrose Solution
Beaker Contains	Half Fill with Distilled Water	Half Fill with 40% Glucose Solution	Half Fill with Distilled Water	Half Fill with Distilled Water
0 Min	7.1 gm	6.9 gm	7.2 gm	7.1 gm
45 Min	8.0 gm	6.9 gm	7.8 gm	8.0 gm

Conclusion:

To conclude, osmosis was present in this experiment. My hypothesis was correct based on my results and observations. The mass stayed the same for tubing #2 which contains Glucose in its tubing and in its beaker, this is because there is no movement because it's the same. . The mass increased for tubing #1. Water moved from the beaker to the sack, which as a result shows us that osmosis occurred and increased the mass for tubing #1 by 0.9 gm. For beaker #3 the mass increased since water moved into the sac. The mass increased by 0.6 gm. Lastly, for beaker #4 the mass also increased since water got in due to osmosis. To finalize, this lab helped us further witness and understand the function of osmosis and it's factors that lead to it's function.