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Lab

Investigating Diffusion and Osmosis Through Nonliving Membranes

Materials:

- 2 dialysis sacs containing 20 ml of 40% glucose solution
- 1 dialysis sac containing 20 ml of 10% NaCI solution
- 1 dialysis sac containing 20 ml of 40% sucrose solution
- 3 beakers ½ filled with distilled water
- 1 beaker ½ filled with 40% glucose solution
- Boiling water
- Benedict's solution (light blue color)
- Test tubes
- Small funnel
- Fine Twine
- 25-ml graduated cylinder
- Wax marking pencil
- Laboratory Balance
- Test tube rack

Procedure/ Instructions

- Label all materials with wax marker pencil. (All sacs label as 1A-4A and all beakers as 1B-4B)
- Using a funnel, Fill each sac one at a time, as the following: Sac 1A= fill with 20 ml of 20% of glucose solution Sac 2B= fill with 20ml of 40% glucose solution Sac 3C= fill with 20ml of 10% of NaCI solution Sac 4D= fill with 20 ml of 40% of sucrose solution

- Tie each sack with fine twine
- Weigh each sac with a laboratory balance to make sure everything is perfectly equipped; Record weight accordingly in the chart.
- Fill each beaker ½ as the following: Beaker 1B=½ of distilled water Beaker 2B= ½ of 40% of glucose solution Beaker 3B= ½ of distilled water Beaker 4B= ½ of distilled water
- Drop the sac into the appropriate beaker, making sure sac is completely covered by the beaker solution.
- Allow all sacs to remain still in beakers for 45 minutes; Observe.
- One by one, quickly, and carefully remove sac from beaker, blot sac dry and record final weight accordingly in the data chart.
- Calculate the weight change (increase/decrease, by how much) for each sac.
- After 45 minutes, boil a beaker of water; Obtain dropper bottles of Benedicts solution, silver nitrate solution, test tube rack, 4 test tubes, and a test tube holder.
- Now we will test for sugar: Obtain sample (will show as colorless) and Benedicts Solution (will appear as light blue color) and mix. Only test #1,2, and 4
- Place the test tube in the boiling water
- Observe the color change (will appear yellow, green, or brown)
- Record down your observations
- Test #3 testing for NaCI
- Record all observations and conclusions

Results:

Beaker	***Contents Of Sac***	***Initial Weight***	***Final Weight***	***Weight Change***	***Test- Beaker Fluid***	***Test- Fluid Sac Fluid***	
Beaker 1 ½ filled with distilled water	***Sac 1, 20 ml of 40% glucose solution***	7.1 gm	8.0gm	Increased 0.9g	***Benedict 's Test: Positive***	***Benedict' s Test : Positive***	***Positive***
Beaker 2 ½ filled with40% glucose solution	***Sac 2, 20 ml of 40% glucose solution***	6.9gm	6.9gm	No Change	Positive	Positive	Positive
Beaker 3 ½ filled with distilled water	***Sac 3, 20 ml of 10% NACI Solution***	7.2gm	7.8gm	Increased 0.6g	***AgNO3 test N/A***	***N/A***	***Positive***
Beaker 4 ½ filled with distilled water	***Sac 4, 20 ml of 40% sucrose solution***	7.1gm	8.0gm	Increased 0.9	***Benedict 's Test:***	Negative	Positive

Hypothesis: If the substance is added to the dialysis bag and is placed into the water then the water will seep into the dialysis bag will have a great mass this process is called diffusion