BIO II Honors Laboratory Exercise: Osmosis and Water Potential

Lab procedure Day 1

1. Obtain six 50 mL beakers
2. Pour approximately 25mL of an unknown solution in a beaker. Label the beaker with the appropriate letter. Repeat with the other five unknown solutions.
3. Obtain 12 potato cubes
4. Record the mass of two potato pieces (together) and place them in one of the beakers. Repeat this until you have 2 potato pieces in each beaker of unknown solution. **Be sure you record which potato pieces were put into each unknown solution.**
5. Set these aside to sit overnight.
6. Now obtain 4 more 50mL beakers.
7. Put approximately 25 mL of 0.2 M NaCl in one beaker and approximately 25 mL of 0.4 M NaCl in another. Label the beakers accordingly.
8. Put approximately 25 mL of 0.2 M Sucrose in one beaker and approximately 25 mL of 0.4 M sucrose in another. Label the beakers accordingly.
9. Obtain the mass of two potato cubes and place them in the 0.2 M NaCl beaker. Repeat with the other three beakers **making sure to record which potato pieces were put into each solution**.
10. Set these aside to sit overnight.
11. Take some time to organize your lab notebook making sure the information from the lab is neatly put in a chart or data table.
12. Answer the Pre-lab questions with your group in your notebook.

Lab Procedure Day 2

1. Take the pieces of potato out of each beaker. **Don’t get them mixed up.**
2. Carefully blot them dry with a paper towel (don’t squeeze them).
3. Check their mass and record this in your data table.
4. Pour all solutions down the sink. **Be sure to wash out the beakers**. And set them on the drying station.
5. Calculate the percentage mass gained or lost for each pair of potatoes using the following formula:

(Final mass – initial mass/initial mass) X 100 = % mass gained or lost

1. Match the unknown solutions with the correct molar concentration by using your calculations.
   1. 0.0M, 0.2M, 0.4M, 0.6M, 0.8M, 1.0M
2. Arrange these values in the correct order and plot a graph of % mass gained/lost by molar concentration of sucrose. Sample A below.
3. Plot another graph of % mass gained/lost by molar concentration using the known sugar and salt beakers (this should be one graph with two lines. One line for sugar and one for salt). Sample B below
4. Answer the post lab questions in your notebook.