



Lab on Osmosis and Diffusion

Introduction: In this activity you will be estimating the solute concentration inside a potato cell by determining the point of being isotonic. By submerging a cell into an environment that has varying amounts of solutes, one can determine where there is no change before and after the submersion into the new environment. This point is said to be isotonic. That is the point where the inside and outside solute concentration is the same.

Materials: Potato, balance, beakers, distilled water, salt, ruler, volumetric flasks, graduated cylinders, reagent bottles.

Procedures:

1. Make solutions from 1 M NaCl using solid NaCl.
2. Make three dilutions from a 1M NaCl stock solution from .1M NaCl to .9M NaCl.
3. Cut 15 Potato pieces that are 10 mm long using the French Fry Maker. Their width will be uniform. Record exact length and mass of each segment. Mass each segment on the balance before placing them into the solutions.
4. You will be determining the concentration of solute inside the potato. Besides Distilled Water(0 molar) you will be mixing up three other salt solutions from 0.1M, 0.2M, 0.3M, 0.4M, 0.5M, 0.6M, 0.7M, 0.8M, 0.9M 1M NaCl. You can use the solution dilution method or from solid. Place three potato pieces into each solution. Make sure they are completely submerged.
5. Let them set for approximately 15 minutes. Then record the mass and length for each segment. Place the before and after data in the spreadsheet
6. Share all raw data gathered by the other groups.
7. Estimate the concentration inside the potato.