

Concentration Differences across a Non-permeable Membrane

Description of the Contents of the Individual Beaker Set-ups

Beaker 1 had 4 pigments of sucrose and 4 pigments of starch in a dialysis bag, which was placed in a surrounding liquid containing 10% sucrose and 4 ball droppers of Lugol's solution. The color of the dialysis bag was clear and the surrounding liquid was amber in color. Beaker 2 had 4 pigments of sucrose in a dialysis bag, which was placed in a surrounding liquid containing 10% sucrose and 4 ball droppers of Lugol's solution. The color of the dialysis bag was clear and the surrounding liquid was amber in color.

Description of the Contents of the Individual U-tubes

The dialysis bag in beaker 1 had an amber color in U and the surrounding liquid was still amber. The dialysis bag in beaker 2 was a clear (white) color and the surrounding liquid was amber.

Results

Beaker / U-tube	Initial Color	Final Color	Final glucose level
Sucrose / Starch Bag	Clear	Amber	10% (Lugol's added)
Surrounding Liquid	Amber	Amber	10% (No starch)
Control Sucrose Bag	Clear	Amber	10%
Surrounding Liquid	Amber	Amber	10%

Clearer was found in the dialysis bag in beaker 1 because the amylose that was in the bag/beaker shows the sucrose into smaller units of glucose. The smaller glucose molecules present in the surrounding fluid in beaker 1 is because glucose is small enough to pass through the semi-permeable membrane (dialysis bag).

I tested for the presence of glucose by using Benedict's

I tested for the presence of starch by using Lugol's solution. A positive result for starch is a blue-black or black color and a negative result for starch is an amber color.

In this experiment water moved from the dialysis bags to outside from an area of high concentration (surrounding liquid) into an area of low concentration (dialysis bags). This movement occurred in both beaker 1 and 2. In beaker 1 glucose moved out of the dialysis bag by diffusion from an area of high concentration into an area of low concentration in the surrounding fluid. In both beakers Lugol's solution moved into the dialysis bag from an area of low concentration from the surrounding fluid into an area of high concentration by diffusion. Starch did not move in either beaker because it is a macromolecule that is too big to pass through the semi-permeable membrane (dialysis bag).