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Instructor Name

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Lab Report

**Claim**

Osmosis is a process that causes the solvent to move from a lower concentration gradient to a higher concentration gradient across the membrane. The hypertonic solution allows the solvent to move inside the cells and resulted in an increased mass of the cell (Vujovic et al.). A hypertonic solution has a greater concentration of fluid particles and consequently when the cell is sited in this type of solution it causes the water to move outside (Vujovic et al.). The hypotonic solution which has a poorer concentration of liquid particles will cause the water to travel inside the cells (Vujovic et al.). The solution in which the liquid movement is not detected across the membrane is an isotonic solution.

When an egg is placed in a solution of vinegar and another egg is placed in a solution of corn syrup, the egg will gain weight in the solution of vinegar because the water will move inside the egg as vinegar is a concentrated solution.

**Evidence**

When water from an area of less concentration gradient of soluble particles moves toward a high concentration gradient through a semi-permeable membrane is a process called osmosis. This happened because of the concentration gradient. There are three types of solutions, hypertonic solution, hypotonic solution, and isotonic solution. A hypertonic solution has a higher concentration of liquid particles and therefore when the cell is placed in this type of solution it causes the water to move outside the water (Vujovic et al.). The hypotonic solution which has a lower concentration of liquefied particles will cause the water to move inside the cells. The solution in which the water movement is not observed across the membrane is an isotonic solution (Vujovic et al.). These concentration gradients allow the liquid to maintain the equilibrium across the membrane.

Movement of water across the membrane occurs because of the difference in concentration. When an egg is placed in different solutions, it changes its volume and mass. The mass of the egg increases when it is placed in the water because of the hypertonic solution as water will act as a hypertonic solution (Vujovic et al.). When the egg is placed in 95% corn soup it will decrease its mass because the water will be parting from the egg. The length of the egg placed in the vinegar increased whereas the egg placed in the corn syrup decreased its size. The fluid concentration of the corn syrup increased and the solution of vinegar the fluid level decreased. Keeping the time as an independent variable and mass and fluid level as dependent variables. The egg placed in the syrup of corn will shrink in size due to the movement of the water outside the egg. Whereas the egg will gain mass and fluid when placed in a hypertonic solution.

**Table 1**

|  |  |  |
| --- | --- | --- |
| **Category** | **Length of Egg** | **Mass of Egg** |
| Egg 1 before soaking | 16.5 cm | 50 grams |
| Egg 2 in the solution of vinegar | 17.5 cm | 68 grams |
| Egg 3 in the solution of corn syrup | 15.5 cm | 47 grams |

**Graph 1**

**Reasoning**

Osmosis is a type of transport by which the solvent moves from a lower concentration gradient to a higher concentration gradient across the semi-permeable membrane. An area with having a higher number of particles will have a higher concentration gradient and an area or space having minimum particles will have a low concentration gradient (Vujovic et al.). Passive transport allows the movement of the particles to move across the membrane without using energy. The hypertonic solution causes the egg to gain mass and a hypotonic solution will cause it to shrink in size by losing its water (Vujovic et al.). The level of fluid rises when an egg is placed in a solution of corn syrup because the syrup allows the fluid from the egg to move outside.

# Works Cited

Vujovic, Predrag, et al. “Learning (by) Osmosis: An Approach to Teaching Osmolarity and Tonicity.” *Advances in Physiology Education*, vol. 42, no. 4, 2018, pp. 626–35.