Science 7 - Osmosis Celery Lab Name:

All plants contain water in their cells, the cells are connected to one another and act as a semi-permeable membrane that water can pass through. In the following lab, celery stalks will be immersed in solutions with varying concentrations of salt. The water in each solution will be dyed, so that water movement within the stalk can be observed. Will the movement of water be affected by different salt solutions?

**Problem:** Does solution concentration affect osmosis in plant cells?

**Hypothesis:** (I hypothesize that if the ‘independent variable’ does blank… then the ‘dependent variable’ will do blank)

**Variables:**

Manipulating Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Responding Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Controlled Variables: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Materials:**

* 3 250ml beakers
* 2 different coloured dye
* Table Salt
* 1 Plastic Knife
* Ruler
* Celery
* Water

**Procedure:**

1. Label each beaker as such:
   * + - Group number / Class section/ No salt added
       - Group number / Class section/ One tablespoon salt
       - Group number / Class section/ Two tablespoon salt

1. Fill each beaker with water to the 200ml mark.

2.A Add **one** tablespoon of salt to the beaker labelled One tablespoon salt

2.B Add **two** tablespoons of salt to the beaker labelled Two tablespoon salt

3. Add 5 drops of red couloured dye the beaker labelled One tablespoon salt, and mix.

4. Add 5 drops of blue couloured dye the beaker labelled Two tablespoon salt, and mix.

5. Cut each celery stalk to be the exact same height

6. Place one celery stalk into each beaker.

7. Wait for approximietly 24 hours.

8. Look carefully at the sides of the each stalk. Using a ruler and a magnifying lens measure how far the dye travelled up the celery stalk and record this distance in mm in the table.

**Observations:**

|  |  |
| --- | --- |
| Solution Concentration | Distance of water travelled through osmosis (cm) |
| No salt added |  |
| 1 Tablespoon |  |
| 2 Tablespoon |  |

**On a seperate sheet of paper create a bar graph of your data!**

**Analysis**

1. Osmosis is the movement of \_\_\_\_\_\_\_\_\_\_\_\_\_ from areas where the solution has a \_\_\_\_\_\_\_\_ concentration to an area where the solution has a \_\_\_\_\_\_\_ concentration.

2. Celery is composed of millions of plant cells. Do these cells contain any water?

3. The cells in the celery create a boundary that water can travel through, what is another name for this boundary?

4. If you placed the celery into a beaker of colored water that contained 3 tablespoons of salt, would the colored water be seen in the celery? Why or why not?

**Reliability:**

**Validity:**

**Conclusion:**

**References:** www.kurpinskisclass.com/unit-b-plants-for-food-fibre-2/