**INVESTIGATING OSMOSIS USING POTATO STRIPS**

**AIM:** To investigate osmosis using potato strips, and salt water. **Skill: ORR**

**APPARATUS and MATERIALS:**

* Potato
* Cork borer
* 2 Petri dishes
* Distilled water
* Salt water
* Ruler
* Forceps
* Knife
* White tile
* Measuring cylinder
* Paper towel
* labels

**DIAGRAM:**





DIAGRAM SHOWING THE SET UP OF APPARATUS TO INVESTIGATE OSMOSIS.

**METHOD:**

1. Cut two potato strips to the same size (1cm x 1cm x 5cm). Dry them on a paper towel.
2. Label one Petri dish ‘water’ and the other one ‘salt solution’. Measure out 30ml of each liquid and put in the appropriate petri dish.
3. Note the initial textures of each strip then, add one potato strip to each dish.
4. Every 5 minutes, take out the strips, dry them and measure the length to the nearest mm. Record the lengths in the table, along with the final texture of the strips.
5. Use a graph paper to make a line graph of the change in lengths of the potato strips.

**RESULTS:** (*Add a title to the table and collect your measurements, then plot a graph.)*

**Table** showing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time (mins)** | **Length of strip in** **water (cm)** | **Texture of strip in water** | **Length of strip in** **Salt solution (cm)** | **Texture of strip in salt solution** |
| 0 |  |  |  |  |
| 5 |  |  |  |  |
| 10 |  |  |  |  |
| 15 |  |  |  |  |
| 20 |  |  |  |  |

**Graph** - Plot on a separate graph page or below.

Remember to put a TITLE and scale, label the axes with units of time (mins) or size (mm).

**DISCUSSION:** (On a new page, using paragraphs)

1. Define osmosis.
2. State what happens to plant cells when placed in pure water (high water concentration) as opposed to when placed in salt solution (low water concentration).
3. Will plant cells burst when placed in pure water? Why or why not?
4. What do your results (from the graph) show? What is the trend?
5. Is there any precautions you took before measuring the strips?
6. Is there any way to improve the results? (Hint – using change in mass instead; or using more than one potato strip and finding average lengths.)

**CONCLUSION:** (Relate to your aim. What did you find out in this lab about osmosis/ putting plant cells into pure water or salt water?)

**MARKSCHEME – OBSERVING, RECORDING AND REPORTING SKILLS (ORR)**

|  |  |  |
| --- | --- | --- |
| **ORR CRITERIA** | **Max Mark** | **Teacher****Mark** |
| **Observations**(accurate) | * Significant changes noted
* Original and final conditions compared
* Control noted OR diagram
 | **3** |  |
| **Recording**Tables/ Graph | * Title – above, in capitals - 1
* Column & row headings (with units) - 1
* Enclosed and neat -1

OR* Title – at base, in capitals, underlined -1
* Both axes labelled with units - 1
* Accurate plots – 1
 | **3** |  |
| **Reporting** | * Format - **ALL** sections present – 1
* Aim in capital letters - 1
* Acceptable language and expression –

grammar – 1 and spelling – 1 | **4** |  |
| **TOTAL** | **10** |  |