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Date of performance: _____**26th June 2023**. _____	

Mark: _____ / ____

Submission deadline: **26th June 2023**.

Experiment 2 – Examination of the uptake of water in xylem

1. Introduction:

- What is the purpose of experiment 2?

The purpose of the experiment is to understand the uptake of water in xylem. Because the food coloring can color xylem and so as to distinguish the position where xylem is distributed. So, the food coloring is used for this experiment.

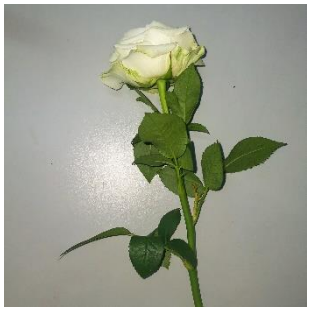
- What is the role of xylem?

Xylem is the tissue of vascular plants that transports water and nutrients from the soil to the stems and leaves. Xylem plays an essential 'supporting' role providing strength to tissues and organs, to maintain plant architecture and resistance to bending.

2. Materials :

- List all the materials and lab apparatus used (with quantities) in the experiment.

✓ White rose(Fig.1)	1	✓ Celery(Fig.2)	1
✓ Food coloring	2-3	✓ beaker	3
✓ Safety gloves	1	✓ Dropper	2-3
✓ Cutter	1	✓ microscope	1



(Fig.1 : A white rose)

(Fig.2 : A celery)

Part I – using the celery

3. Procedures:

- Briefly describe the steps you completed.

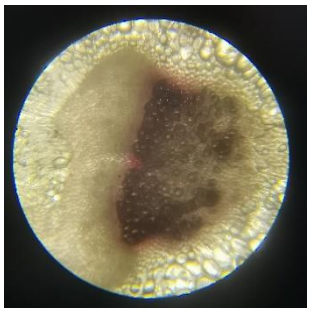
A beaker was filled about halfway with water. 20 drops of food coloring were added in to the beaker. A stalk of celery was cut out (Fig.3) and was placed in the beaker containing coloured water (Fig.4). The celery was sited overnight. After one day, the stalk was colored (Fig.5) and cut to get a transverse section of the celery (Fig.6). A piece of transverse section was placed under the microscope. The internal structures were observed (Fig7).

(Fig.3 : Cutted the stalk along the dotted line)

(Fig.4 : Put in the beakers with food colouring)

(Fig.5 : The transverse section of the celery)

(Fig.6 : A piece of celery)



(Fig. 7 : A piece of celery under the microscope)

4. Observation:

- What are the results of your testing? Describe what you have observed.

The results of the testing were the transverse section of the celery were colored. It approved that xylem is used to transport water and nutrients from the soil to the leaves.

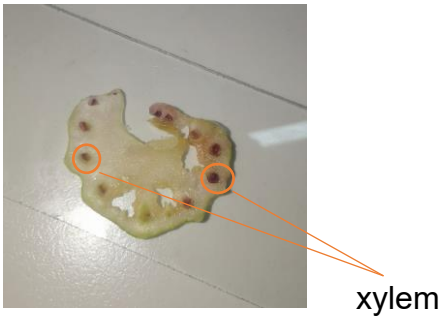
- Paste the photos of the celery at the start and after the experiment.

Start	After
 (Fig.2 : A celery)	 (Fig.5 : The transverse section of the celery)

- Explain your observation.

The xylem of the celery was colored due to the food coloring were dropped in to the water. It approved that water were transferred from the bottom to the top thought the xylem, and xylem is used to transport water and nutrients from the soil to the leaves.

Paste a photo of the transverse section of your celery and locate the xylem.



(Fig.6 : A piece of celery)

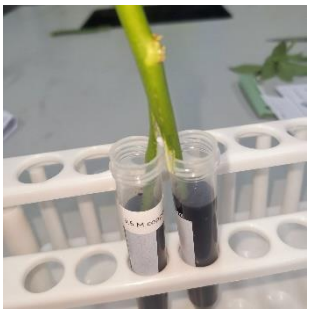
Part II – using the white flower

5. Procedures:

- Briefly describe the steps you completed.

2 beakers were filled about halfway with water. 20 drops of food coloring were added in to the beaker. A stalk of white rose was cut out (Fig.8) and was placed in the beakers containing coloured water (Fig.9). The white rose was sited overnight. After one day, the new colour of the white rose and the movement of the dye were observed (Fig.10).

(Fig.8 : Cutted the stalk along the dotted line)



(Fig.9 : Put in the 2 beakers with food colouring)

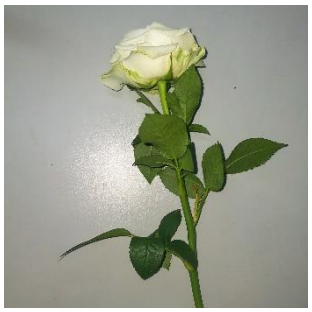
(Fig.10 : The new color of the rose)

6. Observation:

- What are the results of your testing? Describe what you have observed.

The results of the testing were the leaves of the white rose were colored. It approved that xylem is used to transport water and nutrients from the soil to the leaves and distributed throughout the leaf.

- Paste the photos of the flower at the start and after the experiment.

Start	After
 (Fig.1 : A white rose)	 (Fig.10 : The new color of the rose)

- Explain your observation.

The leaves of the white rose were colored due to the food coloring were dropped in to the water. It approved that water were transferred from the bottom to the leaf thought the xylem. Xylem are used to transport water and nutrients from the soil to the leaves, and distributed throughout the leaf.

7. Conclusion:

- What have you learned from this experiment? Draw a conclusion based on your observations.

The xylem of both celery and white rose were colored by the food coloring in these 2 experiments. It showed the pathway of the uptake of water in the plant, the water was transferred from the bottom to the top thought the xylem. The transverse section of celery was putted under the microscope, the distribution of xylem in the celery were observed. The leaves of the white rose were coloured. It showed the xylem were also distributed in the leaves, the water was transferred from the bottom to the top thought the xylem. As the results, I learned that xylem is the tissue of vascular plants that transports water and nutrients from the soil to the stems and leaves.

End