

ACTIVITY 4.2

Investigating the effect of transpirational pull on water transport

Problem statement

What is the effect of transpirational pull on water transport?

Hypothesis

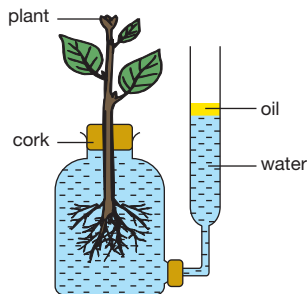
Transpirational pull moves water from roots to leaves

Materials

A plant with leaves and roots, water, paraffin oil, petroleum jelly

Apparatus

A bottle with opening at the edge, side tube, cork, marker pen



Procedure

- 1 The experiment is set up as shown in the diagram.
- 2 The bottle is filled with water.

- 3 A layer of paraffin oil is added on the water surface in the side tube.
- 4 The plant stem with roots is placed through the hole of the cork which is used to cover the mouth of the bottle. The roots are fully immersed in the water.
- 5 Petroleum jelly is applied to the connections to ensure the apparatus is airtight.
- 6 The initial water level is marked with a marker pen.
- 7 The apparatus is placed under sunlight for 30 minutes.
- 8 The change in water level in the side tube is observed and recorded.

Results

The water level drops below the initial level.

Discussion

- 1 A layer of paraffin oil is added to prevent the evaporation of water to the atmosphere so that the decrease in the water level is due to transpirational pull.
- 2 The decrease in water level means transpirational pull is taking place.

Conclusion

Transpirational pull moves water from the roots to the leaves.