Beschreibende Grafik - oder Bildunter-schrift.

Germany: Water

Plants are thirsty, too!

In this laboratory exploration, you will observe how cells absorb and release water

Life needs water

Materials and tools

- Red onion
- Knife
- Razor blade, tweezers
- Pasteur pipette
- Microscope
- Slides, cover glass / slips
- Filter paper
- Beaker with water
- Beaker with salt

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The process of the experiment

Step 1

Halve an onion with a knife. Cut one of the halves length-wise once more.

Step 2

Scratch the inner skin of an onion scake vertically and crosswise with a ra-zor blade. Pick a red spot for it.

Step 3

Carefully remove a small piece of the inner skin with the tweezer. Prepare a moist preparation from the piece of thin onion skin.

Step 4

Place the onion skin in the middle of the slide. Then add a drop of water with a pipette.

Step 5

Now place an cover glass at the edge of the water droplet so that it touches it. Then let it fall care-fully, without air bub-bles, onto the onion

The process of the experiment II/Observation

skin in the drop.

Step 6

Water leaking out is sucked up at the edge of the cover glass with filter paper .

Step 7

Microscope the onion epidermal cells and take a photo.

Step 8

Place a drop of saline solution next to the cover glass and carefully suck water off the other side of the cover glass with the filter paper strip. The salt solution is thus sucked under the cover glass.

Step 9

Observe with the microscope how the cells change

Observation:

In a hypertonic solution, the cells shrivel.

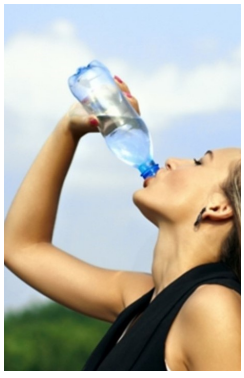
Explanation and Conclusion

Biomembranes are semipermeable. Water molecules can pass them, but not ions. Common salt dissolves in water into its sodium ions and chloride ions. In this experiment, water diffuses along its concentration gradient through the cell membrane into the salt solution. The cell shrinks due to water loss. The process by which water passes through the semipermeable membrane from the hypotonic to the hypertonic solution is called osmosis. Osmosis plays an important role for all living cells.

Drink water, if you are thirsty!

Context

In an adult, the human body consists of 60% water. With a loss of 1%, we feel thirsty. With a loss of 2%, the endurance is reduced. Water is a cellular building block, means of transport for ingested nutrients, means of transport for substances to be excreted, solvents for salts and minerals, solvents for oxygen and carbon dioxide in the blood. For a smooth functioning of all body processes, a balanced water balance is always necessary in the ling term.



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