



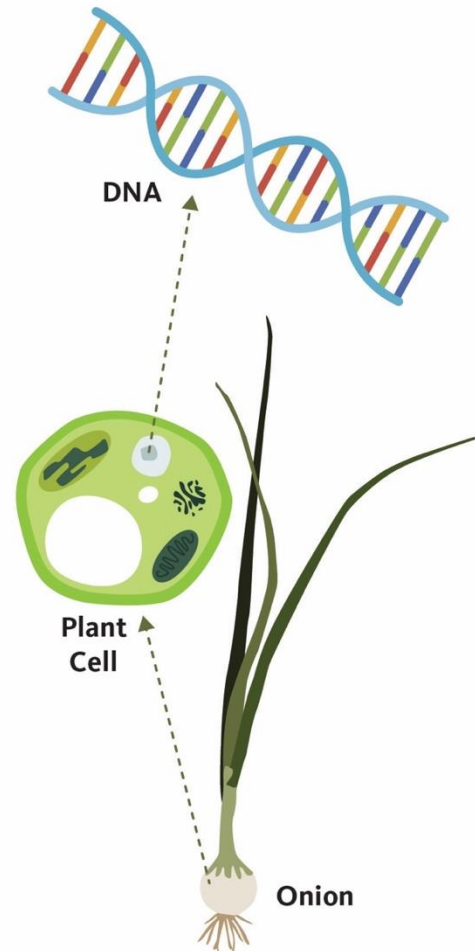
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Onion DNA Extraction

Our bodies are made up of organs. Each organ is made from different types of tissues. Those tissues are made up by cells, and **cells** are the building blocks that make up all living things. Just like our bodies are made up of organs, cells have smaller parts called organelles. One of these organelles is the **nucleus**, which is like the cell's command center. The nucleus sends directions to the cell on what it should do, and it also houses the DNA.

It's not just human bodies that have these parts, but all plants and animals. Onions, for example, are made up by their own set of organs: the roots, stems, leaves, and flowers. Onions also have a special storage called the bulb, which is the part that we eat.

In this experiment, you will be breaking down the bulb and finding the DNA of an onion.



You'll need:

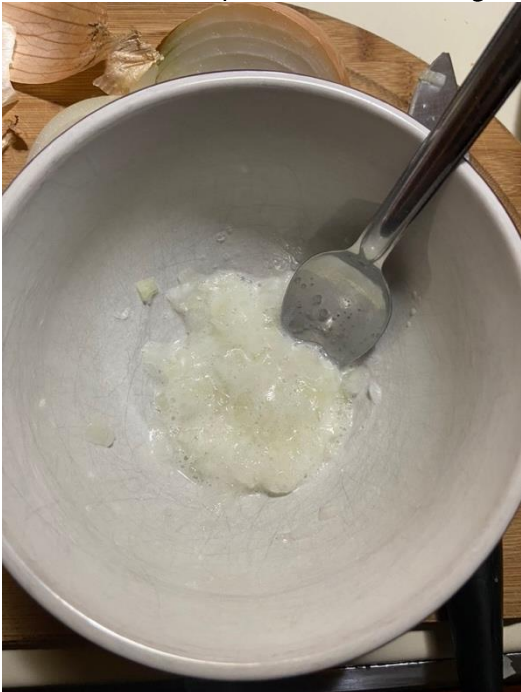
- Small bowl
- Glass jar or cup
- Spoon
- Kitchen knife
- Strainer/colander
- Cutting board
- Toothpick or pencil
- 1/4 medium onion
- 2 Tbsp liquid dish soap
- 1/2 tsp salt
- 1/3 cup rubbing alcohol

What to do:

1. Have an adult help you finely chop the onion and place it in a bowl.



2. Add the dish soap to the onion and gently stir. Try to avoid making bubbles.



3. Let it sit for 10 minutes.
4. Add salt and water and slowly mix, again trying to avoid making bubbles.

5. Place the colander over the glass jar or cup and drain the onion mixture for about 15 minutes. If your colander is large you can do this over a large bowl and then transfer it to a glass jar or cup.



6. Tilt the glass jar slightly sideways and pour in the rubbing alcohol so that it hits the inside wall of the glass first.
7. Allow the jar to sit for about 20 minutes.



8. After 20 minutes, you will start to see white strands start to appear, this is the DNA. Use a toothpick or pencil to gently swirl the white strands around until they come together and lift them out.



How it works

Plants, such as onions, have cell walls that protect the organelles and help maintain the plant's structure. The dish soap and salt break down the cell walls, so the organelles are exposed. The rubbing alcohol dissolves everything except the DNA, enabling us to see it. To truly see the DNA, we would need a microscope, which, depending on the strength of the microscope, would allow us to see the nucleus or the individual strands of DNA.