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Protocol: DNA extraction from a tomato

"It's all about DNA!" This is the answer to the question why a tomato is a tomato. In the TV series CSI, criminals got caught due to the identification of their DNA. DNA is the genetic material which is present in the nucleus of all our cells. But how do we isolate the DNA from the nucleus? An experiment with a tomato shows: there is nothing easier than that!

Material

- Tomatoes
- Table salt
- Lemon juice, filtrated
- Washing-up liquid (colorless)
- Kitchen knife
- Mortar
- Coffee filter
- Alcohol (ethanol, 96%, **-20°C**)
- Test tube with cork plug
- Toothpick

Performance

1. Cut half of a tomato into small pieces with the kitchen knife. Put them into the mortar.

2. Prepare an extraction buffer:
   - 0.5 g table salt
   - 25 ml filtrated lemon juice
   - 5 ml washing-up liquid (colorless)
   - 20 ml water

3. Pour the extraction buffer into the mortar and mash the tomato pieces thoroughly for about a minute .

4. Take the content of the mortar and let it drop through the coffee filter into a clean glass.

5. Take 1.5 ml of the filtrated liquid and pour it into a test tube.

6. Add 1.5 ml water and cover gently with a layer of 6 ml **freezing cold** alcohol (**-20°C**, ethanol 96 %).

7. Hold the test tube quiet for a short time. Alcohol is less dense than water, so it floats on top of the water layer.

8. The DNA is now visible as a „white ball" between ethanol and water. Look for clumps of white stringy stuff where the water and alcohol layers meet. If you want, you can try to grab the DNA ball with the toothpick and take it out of the test tube.

Proper disposal of waste: the reagents do not require special disposal.