

Extracting DNA from strawberries

You will need, for one extraction:

- a zip lock bag
- 1 strawberry
- 2 teaspoons DNA extraction buffer
- Gauze, cut into squares
- Funnel
- Ice cold ethanol or Isopropyl rubbing alcohol
- Test tube with lid
- Long Cocktail stick
- Black cardboard



The DNA extraction buffer:

Makes 500ml (enough for 50 extractions)

- 50ml shampoo (or 25ml liquid dish washing detergent)
- 7.5g kitchen salt (1 teaspoon)
- 450ml water

What to do:

1. Wash the strawberry and remove the the green leaves (called sepals).
2. Place the strawberry in a zip lock plastic bag and crush it with your fist.
3. Add 2 teaspoons of the DNA extraction buffer to the bag, zip it up and squeeze it in your hands for 1 minute.

Crushing the strawberries breaks open many of the strawberry cells, where the DNA is. The extraction buffer contains shampoo and salt. The soap molecules in the shampoo break down the membranes of the cells, releasing the DNA. The salt makes the DNA molecules stick together, and separate from the proteins that are also released from the cells.

4. Place a funnel in the test tube. Place the strip of gauze in the funnel.
5. Pour the strawberry-buffer mixture into the gauze. Filter the mixture into the tube

The gauze will catch cell debris and unmashed pieces of fruit. The DNA will pass through the gauze into the test tube.

6. Carefully pour ice-cold ethanol into the tube, until it is about half full. The ethanol will form a layer on top of the liquid that came through the gauze.
7. Keep the tube still at eye level; do not shake it. Watch what happens.

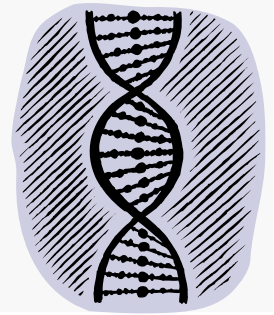
DNA is not soluble in alcohol. The rest of the mixture that passed through the gauze into your tube gradually dissolves in the alcohol, but the DNA separates out (it precipitates). What you see are long, rope-like DNA molecules in the alcohol.

8. Scoop out the DNA with the cocktail stick.
9. Spread the DNA out on a black card and leave it to dry.

Once the DNA dries, you should be able to see its stringy, spider-web structure.

What is DNA?

- DNA stands for Deoxyribonucleic Acid
- DNA is the blueprint for the construction of cells
- DNA molecules are shaped like a double helix, or a twisted ladder
- In cells, DNA is packaged into chromosomes



Did you know...?



- There are about 2m of DNA in each of your cells
- If all the DNA in your body was put end to end, it would reach to the sun and back over 600 times?
- Human DNA is 98 % identical to chimpanzee DNA?
- My DNA is 99% identical to your DNA...yet we are so different!

Why use strawberries?

Strawberries are soft and easy to crush. Strawberries have eight copies of each chromosome – that is a lot of DNA in each cell!



Stem cells have DNA too! Would you like to know more?

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