

DNA Extraction from Strawberries

What is DNA?



DNA is a chemical instruction kit. It provides the code for producing the proteins that are essential for growth and which determine everything about the plant or animal. DNA forms chromosomes which are found in the nucleus of most cells. A section of DNA that has the genetic code for making a particular protein is called a gene. The gene is the unit of inheritance, and each chromosome may have several thousand genes.

Why strawberries?

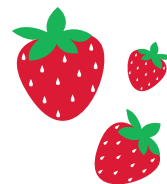
DNA can be extracted from all living things. We have 2 sets of chromosomes one from each parent. Strawberries are a polyploid plant, they have 8 sets of chromosomes which means that each cell contains lots of DNA. This means that the DNA you extract will be easy to see.

Aim: To extract DNA from strawberries to demonstrate it is present in living organisms and can be visualised using simple methods.

First you need to break the cells to release the DNA. We do this by crushing the fruit then adding soap to breakdown the cell membranes. Salt is also added separate the DNA from proteins which are inside the cell. The mixture is then filtered. The DNA will pass through the sieve as it is dissolved in the water. It is not soluble in alcohol though so adding a little will separate the genetic material. The DNA can easily be captured by gently removing it from the surface.

Equipment

Strainer	Salt	Chilled surgical spirit
2 cups	Washing Liquid	Water
3 strawberries	Self-Sealing Bag	Cotton Buds



Method

- Make your extraction solution by mixing 2 teaspoons of washing liquid, 1 teaspoon of salt and 150 ml water.
- Remove the stalks from the strawberries. Place in a bag and gently crush. Add 50ml of your extraction mixture and mix well.
- Carefully tip the mixture through a strainer into a small cup. Gently run cold spirit down the side of the so that it rests on the surface.
- Leave to stand for a few minutes. You should see white material form where the liquids meet. This is the DNA, carefully remove with a cotton bud and store in a small tube