

DNA Extraction

Collect

- Strawberries
- Sealable sandwich bag
- 2 tsp dish soap
- 1 tsp salt
- 1/2 cup water
- 2 cups of any size
- Spoon
- Coffee filter
- Rubber band
- 1/2 cup isopropyl (rubbing) alcohol
- Toothpick

Squish it

1. Leave a bottle of rubbing alcohol in the fridge for a few hours until it is chilled.
2. Remove any stems or leaves from the two strawberries.
3. Put two strawberries in the sealable plastic bag. Close the top of the bag, removing as much air from the bag as possible.
4. Use your hand to gently squish the strawberries until they are completely mashed.

Mix it

1. Add 2 teaspoons of dish soap, 1 teaspoon of salt, and a 1/2 cup of water in one cup. Stir the mixture with a spoon.
2. Add 2 teaspoons of the mixture to the bag of crushed strawberries.
3. Seal the bag and then gently squish the mixture around in the bag for one minute, making sure that it is completely mixed.

Strain it

1. Place a coffee filter inside the second plastic cup. Rubber band the edge of the filter to the top of the cup to keep it from falling inside.
2. Pour the strawberry mixture into the filter and let it slowly drip into the cup. Lift up the coffee filter and then gently squeeze any leftover liquid into the cup.
3. Throw away the filter and leftover strawberry solids.

Isolate the DNA

1. Slowly pour cold rubbing alcohol into the strawberry liquid until there is an equal amount of strawberry liquid and alcohol in the cup. Don't stir it!
2. Watch for a while cloudy substance to form between the liquid strawberry and the clear alcohol.
3. Dip a toothpick into the clody substance and then scoop it up—that's the DNA!

What's happening?

DNA (deoxyribonucleic acid) is found in every single cell of all living things. It acts like a recipe or blueprint that carries all of that organism's genetic information and tells each cell what to do. In this experiment, you extracted DNA from strawberry cells. When you mashed the strawberries and mixed them with the soap, salt, and water, the cells of the strawberries started to break down and release the DNA inside. When you added the rubbing alcohol, it isolated the DNA and clumped it together so that you could see it more easily. If you had a really strong microscope, you would see that DNA usually looks like a twisted ladder called a double helix.