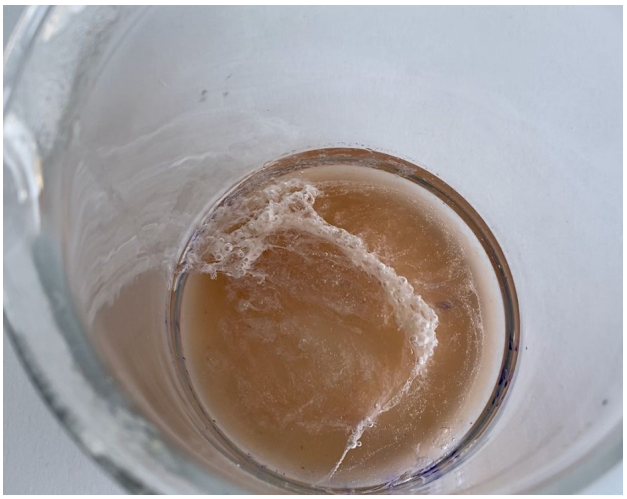
DIY SCI: Strawberry/Banana DNA Extraction



What is it?

Ever wondered what DNA looks like? Although it may not look like the typical double-helix structure of DNA, you can still see the DNA of things we eat daily including strawberries without the need for a microscope!

What you need

- Fresh strawberries
- Dish soap
- Salt
- 70% Rubbing/Isopropyl Alcohol (cold)
- Measuring cups
- Mixing bowl
- Tweezers
- Pipette
- Beakers
- Strainer
- Plastic spoon
- Paper towel

How to make it:

1. Place the rubbing alcohol inside a refrigerator or freezer.
2. Pour a ⅓ cup of water into the mixing bowl.
3. Add a ½ teaspoon of salt into the mixing bowl.
4. Add a tablespoon of dish soap into the mixing bowl.
5. Mix the ingredients together.
6. Acquire 3-4 strawberries and place inside a Ziploc bag.
7. Add 3 tablespoons of the solution created earlier into the Ziploc bag.
8. Close the Ziploc bag, squeeze out all the air, and mash the strawberries till a foamy paste is created inside.
9. Place a strainer on top of the beaker.
10. Using a plastic spoon, apply pressure onto the paste remaining in the strainer to maximize the amount of liquid inside of the beaker.
11. Remove the rubbing alcohol from the refrigerator or freezer.

12. Slowly pour a ½ cup of rubbing alcohol into the beaker containing the strawberry liquid. Do so by tilting the beaker and slowly pouring the rubbing alcohol so it trickles down the sides. (At this point, there should now be two layers of liquid inside the beaker. The dark pink solution at the bottom and the clear solution sitting on top of the dark pink solution.)
13. Place a paper towel onto the surface of where you're working.
14. Using the tweezers, pick out chunks from the clear solution. These chunks represent the strawberries' DNA.

What do you notice?

Although you've probably figured it out, what you've extracted out from the strawberry solution in the beaker is the strawberry's DNA. Even though we could've used other types of fruits, strawberries are the best for this type of experiment because they yield the most DNA making it easier to see. This is because strawberries are octoploid meaning that each chromosome has 8 copies of itself, which is a lot!

Because there were so many ingredients involved within the experiment, you're probably wondering what the purpose of each one was. In this case, each ingredient plays a vital part in breaking up the strawberries' DNA. The dish soap broke down the cells' cellular membrane, salt breaks chains of protein chains and nucleic acids, and the alcohol makes it so that the DNA is insoluble.