



Making DNA Visible to the Naked Eye

Student's Name

Course

Professor's Name

Date

example from essaypro.com



Making DNA Visible to the Naked Eye

Introduction

DNA, or deoxyribonucleic acid, is a polymer present in all life forms. It contains instructions that determine how certain cells look, behave, and reproduce. Normally, DNA isn't visible to the naked eye – a microscope is required to view it. (Calladine, 2003)

In this experiment, I will attempt to release the DNA from the sliced fruit and make it visible to the naked eye. The hypothesis is that alcohol on the released DNA will cause it to join into larger chains, thus making them easy to see without a microscope.

Materials

- One banana
- Water (240 ml)
- Dish soap (35 ml)
- Salt (5 g)
- 70% isopropyl alcohol
- Zippable plastic bag
- Coffee filter
- Funnel
- Test tube
- *Extracting DNA: Lab Manual* (2019)

Procedure



Make the extraction solution by adding 35 ml of dish soap and 5 g of salt to 240 ml of water and mixing well. Put a third of the banana into the zippable plastic bag, close the bag, and mash the fruit manually. Add 30 ml of extraction solution to the plastic bag to cause the cell walls to break and release DNA. Continue mashing the fruit for another minute, then let it sit for 15 minutes. This increases the amount of DNA released into the solution.

Put the coffee filter into the funnel and place them into the test tube. Pour the contents of the plastic bag into the test tube, thus separating the solid fruit from the liquid solution. The test tube is a third full. Slowly add 45 ml of 70% isopropyl alcohol to the test tube and watch the result.

Results

After adding the alcohol, DNA appears in the tube; it looks like cotton fluff. It can then be collected using a wooden coffee stirrer or a similar tool.

Conclusion

Following the experiment, it can be concluded that it is possible to make DNA visible to the naked eye using 70% isopropyl alcohol.

Similar experiments can be conducted on different types of fruits (strawberries, grapes, etc.). The procedure can also be tested for extracting human DNA by using saliva mixed with water instead of fruit.



References

Calladine C.R., Drew H.R., Luisi B.F., Travers A.A. (2003). *Understanding DNA: The molecule & how it works*. Amsterdam: Elsevier Academic Press.

Extracting DNA: Lab Manual. (2019). Harvard University Press.

example from [essaypro.com](https://www.essaypro.com)