

Name _____



DNA Extraction Lab

Purpose: DNA is present in all living organisms. The purpose of this lab is to extract and examine the structure of DNA from cells.

Materials: mortar/pestle, filter paper, fruit, detergent, water, salt, pipette, test tube, isopropyl alcohol, stirring rod, cup

Procedure: In order to maximize your results, PLEASE CAREFULLY read and follow the instructions step by step. Check off each step as you do it!

1. Obtain a cup and spoon and mortar/ pestle. Clean out the mortar/pestle with water.
2. Place one spoonful of detergent and 2 pinches of salt inside the mortar (cup).
3. Add water until the mortar is 1/3 full.
4. Stir slowly with stirring rod for one minute MAKING SURE CONTENTS OF MORTAR DO NOT FOAM.
5. If needed, scoop out seeds from fruit. Place the remaining pieces of fruit in the mortar.
6. Grind the fruit with the pestle/spoon for 10 minutes, carefully mashing the fruit.
7. Put the filter paper inside the cup and fold the edges of the filter down so that the filter does not touch the bottom of the cup.
8. Slowly pour the fruit solution into the filter and wait for it to drain through.
9. Obtain a test tube with cold alcohol.
10. Fill the pipette with the fruit solution and add it to the alcohol.
11. Let the solution sit without mixing or shaking for 3 minutes.
12. You should see little white pieces of DNA floating out of the solution.
13. Stick a probe (stirring rod) into the solution and pull out the DNA; it will look like white string. Again; DO NOT STIR, SHAKE or POKE the mixture.
14. If time permits, look at the DNA you pulled out underneath the microscope.

Questions: Do these before you start the lab.

1. What is DNA?
2. What are the building blocks of DNA? Sketch and label an example of a DNA building block.
3. What four nitrogen bases make up DNA nucleotides? How do the base pairs bond together?
4. What makes up the rungs of the "ladder"?
5. What makes up the sides of the "ladder"?

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Results:

1. Did your experiment succeed; were you able to pull DNA out of your mixture?
2. If your experiment was unsuccessful, give reasons why you think you were unable to extract DNA from your sample.
3. What would you have done differently given the opportunity to repeat the procedure? Be specific.
4. Draw a picture of what the DNA looks like with just your eye, with low power under the microscope, and with high power under the microscope. (Use microscopes if available and if time permits).

Conclusion:

5. What is the purpose of the detergent used in step 2?
6. Why is it important not to allow foam to form in step 4?
7. What is the purpose of the alcohol used in steps 9 and 10?
8. Why is it important not to shake or stir the contents of the test tube?