

EXTENSION- ANALYZING FOODS

Introduction: You may know that different foods provide different types of nutrients for people. You may also know that some foods are “bad” for you for some reason. What is in foods and why would some be better or worse for you to eat. What is a “good” food? Write a short description about the role of each molecule in your body:

Lipids (fats)-

Proteins-

Carbohydrates-

Nucleic Acids-

Prediction: Which of these macromolecules do you think you have eaten today?

Data Table: Complete the chart below for 3 different foods using the following tests.

Place a + for a positive test and a – for negative. To show a very strong test result, add more ++++.

Food	Prediction (Which tests will be positive?)	Test 1: Lipid (Fat)	Test 2: Protein	Test 3: Sugar	Test 4: Starch

Test 1: Lipid

1. Take a small amount of the food and rub/drop it on a paper towel.
2. Wait 5 minutes to see if the mark dries out. If it does not dry out and instead makes the paper more transparent, it is a positive test for a lipid. (complete other tests while waiting for results)

Test 2: Protein

Biuret solution is used to identify the presence of protein. Biuret reagent is a blue solution that, when it reacts with protein, will change color to pink-purple.

1. Add a small amount of liquid to be tested to a test tube (if you are testing a solid, mash it up with a mortar and pestle and add a small amount of water)
2. Label each test tube with tape.
3. Add 3 drops of Biuret reagent solution to each test tube. Shake gently to mix.
4. Carefully heat the test tubes by suspending in a hot water bath until reaction is easily detected.
5. Note any color change. Proteins will turn solution pink or purple, sometimes yellow.

Food Test 3: Sugar test

Benedict's Solution is used to test for simple sugars, such as glucose. It is a clear blue solution of sodium and copper salts. In the presence of simple sugars, the blue solution changes color to green, yellow, and brick-red, depending on the amount of sugar.

1. Add a small amount of liquid to be tested to a test tube (if you are testing a solid, mash it up with a mortar and pestle and add a small amount of water)
2. Label each test tube with tape.
3. Add 10 drops of Benedict's solution to the test tube. Carefully heat the test tubes by suspending in a hot water bath for about five minutes.
4. Note any color change. If sugar is present solution will turn green, yellow, or brick-red, depending on sugar concentration.

Food Test 4: Starch Test

1. Place a small amount of the food in a beaker and add a few drops of IKI solution on the food.
2. Look for a dark color to appear. If it does, the food has starch.

Analysis

1. Why might a test for nucleic acids not be used for foods?
2. How accurate were your predictions?
3. In general, what foods were high in carbohydrates?
4. In general, what foods were high in proteins?
5. In general, what foods were high in lipids?
6. Which macromolecules are "best" for you?
7. Which are "bad" for you?
8. Which macromolecules should a good diet include