

Identifying Organic Compounds

The most common organic compounds found in living organisms are lipids, carbohydrates, proteins, and nucleic acids. Common foods, which often consist of plant materials or substances derived from animals, are also combinations of these organic compounds. Simple chemical tests with substances called indicators can be conducted to determine the presence of an organic compound. A change in the color of the indicator is usually a positive test for the presence of an organic compound.

In this investigation you will use several indicators to test for the presence of lipids, carbohydrates, and proteins in particular foods.

Lipids

1. Obtain a small piece of a brown paper bag.
2. Label the paper with the substance you will be testing.
3. Wipe a small amount of the test substance on the bag.
4. Wait 10 to 15 minutes for the sample to dry and hold the paper up to the light.
5. If the substance has left a translucent spot (can see through) this indicates the presence of a lipid.

Carbohydrates

Starch Test

1. Fill a small test tube with .5 mL of the substance to be tested (label test tube).
2. Add 2 drops of Iodine to the test tube. Gently shake.
3. Iodine turns to blue-black in the presence of starch.

Monosaccharide Test

4. Fill a small test tube with .5 mL of the substance to be tested (label test tube).
5. Add 5 drops of Benedict's solution to the test tube. Gently shake.
6. Place test tube in a hot water bath for 10 minutes, remove, gently shake and observe the color.
7. Benedict's solution turns green, yellow, orange, or red in the presence of a monosaccharide.

Proteins

1. Fill a small test tube with .5 mL of the substance to be tested (label test tube).
2. Add 3 drops of Biuret reagent to the test tube. Gently shake.
3. Biuret reagent turns purple in the presence of proteins.