

Basic Testing for Proteins Lab

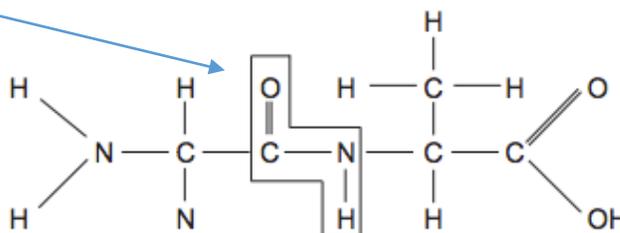
Introduction:

This lab is a preliminary lab that uses Biuret reagent to detect the presence of proteins.

Proteins are massive important chemicals found in our body. They are polymers that are made from the linking of many, many monomers called amino acids. Amino acids are the basic building blocks of proteins. There are 22 different kinds of amino acids with all of them consisting of a basic backbone structure such as a *carboxyl group* (-COOH) and a *amino group* (-NH₂). When amino acids are linked together, they form a **peptide bond**.

All amino acids contain the following elements:

- Hydrogen
- Nitrogen
- Carbon
- Oxygen



Biuret's solution:

Biuret's solution is **blue** in colour when it is in its original state. When there is a presence of amino acids, it will turn a striking **purple** colour. Any other colour will indicate a negative result.

Materials:

- Test tubes
- Test tube rack
- Eye dropper
- Goggles
- Biuret's Solution
- Gloves
- Test tube clamp

Food samples:

- Milk
- Albumin (egg white)
- Bread
- Yogurt
- Tofu
- Meat
- Cracked
- Potato

Procedure:

1. Do not SPILL Chemicals on Skin or Clothing. It will stain!
2. All glassware MUST be cleaned BEFORE and AFTER to achieve accurate results!
3. Obtain 7 test tubes and label C and 1 – 6. The C is the control where nothing will be added to it. It will be used as a comparison.
4. Add 3 drops of Biuret's solution to each and 10ml water to the Control.
5. Take a small sample from the various food samples. Add about 5ml of water to each to have the sample either submerged if it is a solid or diluted if it is a liquid.
6. Shake/agitate and wait a couple minutes for the results to develop.
7. Create a table for your observations.
8. Clean each test tube by washing each with soap provided.

What you need to hand in:

1. Your own version of your observation table that is properly labeled.
2. An summary discussion of what the purpose of the lab is and what you have accomplished by completing the lab.
3. Questions below.

Questions:

1. How are proteins different than carbohydrates in terms of structure.
2. Describe 2 functions of proteins and 2 functions of carbohydrates.
3. Why are important molecules such as enzymes and antibodies composed of proteins and not carbohydrates? How is this advantageous?