Science 9-Biology

Experiment 6-1—Testing for Carbohydrates

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Name _____

Due Date _____

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Purpose: To test foods for **starch** and **simple sugars**.

Materials: IKI Solution for starch test
Benedict's solution for sugar test
Starch
Various food samples for testing

Procedure:

Part I-Starch Test

1. In a watch glass take a very small amount of pure starch.Add two drops of IKI to the starch to see what change takes place. You may have to wait a few seconds for the full change to occur. Record your observation in the box below:

When IKI (Iodine Solution) is added to starch it

Part 2-Testing Foods for Starch

1. Get very small amounts of five different food samples and put each one into a different place on a spot plate. Select some samples that you think have starch and some you think don't have starch. In one of the places on the spot plate, put a few drops of water. It is known that pure water does not contain starch, so this is an **experimental control**! Make sure you know which sample is which.

2. Write the **name** of each sample in the following table:

Name of Sample	Observations with IKI	Positive Test for Starch? (Y/N)
1. Water		
2.		
3.		
4.		
5.		
6.		

3. Add two drops of IKI solution to each of the six samples, wait for a couple of minutes then write down the **observations** in the table above.

4. Compare each observation with the starch test on page 1 of this lab and decide whether the food tests **positive** for starch or not. Fill in the results in column 3 of the table above.

Part 3-Testing Foods for Simple Sugars

1. Fill a 400 or 600 ml beaker half full of water, place it on a hotplate and bring it to a boil. Once the water boils reduce the heat. You will share a hot plate with the other group at your station.

2. Get 6 test tubes and label them 1-6.

3. Add about 2 mL of water to test tube #1. This is your experimental control.

4. Get small amounts of **five** different food samples and add them to test tubes #2-6. In the table below, put the **name of the sample** beside the **test tube number** it corresponds to. Make sure you do this before you start Procedure 5!

Test tube #	Name of Sample	Observations with Benedict's Solution	Positive Test for Simple Sugar? (Y/N)	Relative Amount of Sugar (L/M/H)
1	Water			None
2				
3				
4				
5				
6				

5. Add about 3 mL of **water** and 3 mL of **Benedict's Solution** to each of the 6 test tubes and swirl it to mix it.

6. Carefully place the six test tubes into the gently boiling water bath and let them sit for 3 to 5 minutes.

7. Remove the test tubes from the hot water bath and turn off the hotplate. Place the test tubes in a rack in the order of 1→ 6.

8. Record your observations for each sample in the table in Procedure 4 above.

9. Given that:

Blue	**Means No Simple Sugar**
Green	**Means a Low Amount of Simple Sugar**
Brown	**Means a Medium Amount of Simple Sugar**
Orange	**Means a High Amount of Simple Sugar**

Decide whether each sample tests positive (Y) or negative (N) and estimate the relative amount of simple sugar in each sample (L, M or H). Write the results in the table in Procedure 4 above.

10. Clean out all the test tubes with the remaining hot water in the water bath. Use a test tube brush and soap to make sure you get the test tubes very clean! Also, clean up any mess caused by the food samples.

Questions:

1. In order to test a food for starch, add a few drops of _____ solution.

   If starch is present, the colour of the solution will turn _____

   If starch is NOT present, the colour of the solution will remain _____

2. In order to test for simple sugars in foods, add water and _____ solution. Then place the test tubes in a _____

   If the solution stays _____, it means there is no simple sugar.

   If the solution turns _____, it means there is a small amount of simple sugar.

   If the solution turns _____, it means there is a medium amount of simple sugar.

   If the solution turns _____, it means there is a large amount of simple sugar.

3. Name a few common foods which contain starch.

4. What does the body use starch for?

5. Name a few common foods which contain simple sugars.

6. What does the body use simple sugars for?

7. What was the purpose of including a sample of water with each set of food samples in the starch and sugar tests? _____