

Carbohydrate Inquiry Lab

Question: What types of carbohydrates are in plants and where are they located?

Action:

Choose three pieces of plant tissue to test.

How will you test them? What are your controls?

Design your own data table to collect your data.

Materials available:

- Corn
- Beans
- Spinach leaves
- Celery
- Apples
- Wheat flour
- Carrots

Starch (amylose) Test

Place a drop or two of iodine directly on a piece of your sample

- or -

Place a solution of your sample in a test tube and add a dropper full of iodine. Thwack the test tube a few times to mix.

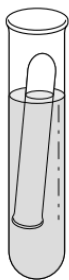
Monosaccharide test (glucose or fructose)

Place a blended solution of your sample into a test tube. Add a dropper full of Benedict's solution to the test tube. Place the test tube in a hot water bath and look for a color change from blue to orange.

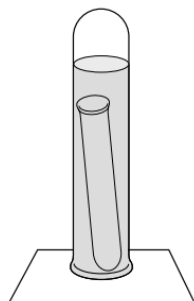
Disaccharide Test (sucrose) only if there is no positive starch or monosaccharide test

Place a solution of your sample into a small beaker. Stir in .2g of yeast. Pour the solution into a large test tube and place a smaller test tube upside down in it. Place your hand, or a piece of cardboard over the large test tube and flip it over to fill the small test tube with liquid. Slowly invert the test tube again so that there are no air pockets in the small test tube. Set the tube aside for 48 or more hours and observe.

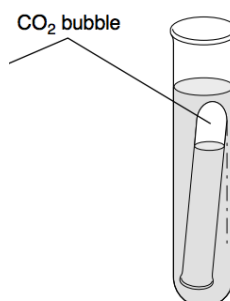
Invert small tube



Invert to fill small tube



Turn large tube upright



TYPE A FORMAL LAB REPORT!

Answer all analysis questions

Analysis Questions

1. Which substances contained starch or monosaccharides? Why do you think they were there?
2. Which substances probably only have cellulose? What does cellulose do?
3. What kinds of carbohydrates are in plants? Where are they located?
4. What cellular process makes carbohydrates?
5. Can humans or other animals make their own carbohydrates? How do we get them?
6. Cellulose is made of the monosaccharide glucose, but humans can't digest it. Do a little research and find out what organisms can digest cellulose.