

Name: _____

Measuring CO₂ Produced by Yeast

Background: What is yeast? Yeast is a microscopic fungus... it's a living organism!!! In a process called fermentation, these fungi convert the sugars present in dough into carbon dioxide gas, which forms pockets in the dough, causing it to expand. This process also produces small amounts of alcohol, but baking burns it off (and kills the yeasts).

Purpose: In this lab, you will test the rates of alcoholic fermentation by yeast when combined with different sweeteners, such as table sugar and corn syrup. Propose a hypothesis about how sugar and corn syrup will affect the amount of CO₂ production by yeast.

Hypothesis:

Materials: Yeast, warm water, 3-100 mL beakers, corn syrup, sugar, funnel, 3 balloons, permanent marker, measuring tape, plastic spoon teaspoon

Procedures:

1. Label each balloon as **control**, **sugar**, and **corn syrup**.
2. Measure 2.5 teaspoons of yeast and using the funnel, put 2.5 teaspoons of yeast in each balloon.
3. Measure out 60 mL warm (45 degrees Celsius) water in 3 separate beakers.
4. Add 1 teaspoon of corn syrup to the first beaker and stir.
5. Add 1 teaspoon of sugar to the second beaker and stir.
6. Using the funnel, pour the water/sweetener mixture into the correct labeled balloon. Tie off the balloons.
7. Measure the circumference of the balloon and record in your data table.
8. Place the balloons in a warm area under or near a heat lamp.
9. Observe your balloons in 5 minutes increments as well as balloons from other class periods. Measure the circumference of the balloons with a measuring tape and record.
10. Clean and dry all lab equipment.

Data:

Balloon	0 min	5 min	10 min	15 min	20 min	Other class	Other class	Other class
Control (no sweetener)								
Sugar								
Corn Syrup								

1. What caused some of the balloons to inflate?
2. What chemical reaction does this experiment show?
3. Which of the sweeteners caused the yeast to produce a bigger balloon? Why?
4. What characteristics of the sweeteners might be responsible for the difference in production?

Conclusions:

1. Was your hypothesis supported by your results? Why or why not?
2. What can you conclude from your experiment about different sweeteners?