**Factors Affecting Yeast Fermentation Lab Name: \_\_\_\_\_\_\_\_\_\_\_**

Yeast are unicellular organisms that reproduce asexually by budding. Yeasts require carbohydrates, such as sugars for food. From these, they produce carbon dioxide (CO2) gas and alcohol as byproducts. These products are responsible for the rising of bread dough and the fermentation of various alcohols. They also play the initial role in the production of vinegar.

Yeast must be first activated to make bread dough. To activate yeast, place 1 tsp in 250ml warm water (40- 50C) with 1 tsp of sugar. Stir until everything is dissolved. Evidence that the yeast is still active will be the presence of foam (bubbles in the mixture) as CO2 gas is produced.

**Question: What factors might have an effect on the fermentation of yeast?**

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Control variables (at least 3): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hypothesis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Materials: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedure:** BRIEFLY outline how you plan to test ONE factor that may affect fermentation activity of yeast. Include amounts and how you will quantify your results.

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**Observations: Put any quantitative data (measurements) in a table. Any qualitative observations can be in point form.**

**Data Analysis**

1. Summarize your results. Did the data support your hypothesis valid (shown to be correct)? **Use scientific reasoning to explain why or why not.**

3. Evaluate your experiment. Identify some sources of error. Be specific. How did this affect your results?

5. What specifically would you do differently to get better results if you had to repeat this experiment? How would this affect your results?

6. How can you apply this experiment to real life?

6. Self Assess:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hypothesis** | No variables identified  includes hypotheses in incorrect format | variables are partially identified or identified incorrectly  includes hypothesis in “If…then…” format with limited reasoning | variables are correctly identified  includes and describes hypothesis in “If…then…” format using scientific reasoning | variables are correctly identified  includes and explains hypothesis in “If…then…” format using correct scientific reasoning |
| **Analysis Questions** | Data is interpreted  Validity of the hypothesis is stated  Only 1-2 positives and negatives stated about the method.  Improvements to the method are stated | Data is interpreted and results are explained  Validity of the hypothesis is assessed and outlined using scientific reasoning.  A minimal list of positives and negatives about the method  Improvements to the method that would benefit the scientific investigation are outlined. | Data is accurately interpreted and results are explained using scientific reasoning  Validity of the hypothesis is assessed and described using scientific reasoning.  A list of positives and negatives about the method.  Improvements to the method that would benefit the scientific investigation are described | Data is correctly interpreted, and results are explained using correct scientific reasoning  Validity of the hypothesis is assessed and explained using scientific reasoning.  A detailed list of positives and negatives about the method.  Improvements to the method that would benefit the scientific investigation are explained. |

*Data table has a title and it is clear what each number represents.*