

Abstract

Project Title: Effects of Vitamins on the Yeast Fermentation Process

Project ID: 563

Abstract

A brief explanation of your project. Enables judges to receive a base understanding of your project and work.

The yeast fermentation process is used for baking, alcohol beverage fermentation and the production of biofuels. Some vitamins can speed up the fermentation process. In this project, in order to better understand the effects of vitamins, two water-soluble vitamins, vitamin C and vitamin B₁ were used to determine whether they can speed up the fermentation process. The amount of CO₂ produced in the yeast/sugar/water formulations with/without vitamins were measured with time to calculate the fermentation rate. The effects of pH on the water formulations and the effects of vitamins on dough fermentations and baking were also studied. It was found that the incubation time for vitamin B₁ and vitamin C in the yeast/sugar/water formulations were slightly longer than the control. However, vitamin B₁ and vitamin C both sped up the fermentation process at a later stage. It was surprising that more vitamin C slowed down the fermentation process, which is due to lower pH and higher acidity, but neutralizing vitamin C with baking soda to pH7 greatly sped up the process. In addition, the dough formulations with the vitamins had a slightly slower growth rate than the control, but after being baked, the breads with the vitamins grew higher and had a better texture. Therefore the hypothesis that vitamins B₁ and vitamin C both sped up the fermentation process was proven correct.

Items to Include:

- **Introduction:** Why did you do this project and why is it important? How will this affect people and why is it needed. Inspire the reader to continue learning more about your research and read your report.
- **Problem Statement and Engineering Goal / Hypothesis:** What is the problem you were solving and what was your engineering goal or hypothesis.
- **Procedures:** How did you solve the problem and or test your hypothesis. Don't go into details, provide a broad, conceptual view of what you did. For engineering, what was your design criteria?
- **Results:** What was the outcome? Use your data and numbers to describe your result.
- **Conclusion:** Was your hypothesis supported or the engineering goal met?