

We collected data to see what the effects of different types of yeast with Red Bull. After working with yeast fermentation this quarter, we decided to make our project centered around how fermentation with Red Bull would influence the fermentation process with different variations of yeasts. Our initial hypothesis was that the Red Bull promote greater fermentation than other solutions. Our findings suggest that the effectiveness of Red Bull for fermentation varies depending on the type of yeast.

Introduction

For our project, we decided to investigate how fermentation would be affected when different types of yeast were combined with Red Bull, a 20% sucrose solution, and water. We chose to use ale yeast, wine yeast, and cider yeast. Knowing that each type of yeast can react differently to the solutions, we wanted to know how these additional components would react. We included a 20% sucrose and a water solution to establish a baseline for comparison. We were interested to see if the components of Red Bull would enhance or inhibit fermentation compared to that of the sucrose and water. We hypothesized that Red Bull would promote greater fermentation activity than the other solutions due to its high sugar content.

Methods

Materials & Location

We performed this experiment with 3 grams of 3 different kinds of yeast, ale (A), wine (B), and cider (C), 10mL of 50% Red Bull solution for each kind of yeast, 10mL of water (negative control group) for each kind of yeast, and 10mL of 20% Sucrose solution (positive control group) for each kind of yeast. We also used 3 pipettes, 3 stirring sticks, 3 beakers, 3 graduated cylinders, and 9 fermentation tubes, one for each mixture. This experiment was performed at WCC in Mrs. Maniatis' Biology 160 class.

Procedure

We mixed 3 grams of ale yeast with 10mL of a 50% Red Bull solution, another 3 grams with 10mL of a 20% Sucrose solution, and another 3 grams with 10mL of water. We repeated these steps with wine and cider yeasts, and each yeast group was labeled with A (ale), B (wine), and C (cider). (Red Bull A, Sucrose A, water A, etc). We performed this experiment twice and calculated the average of the 2 for our results.

The Effects of Red Bull Versus Different Types of Yeast

Audrey Smith, Kaleb Jones, Hong-Tam Pham, Sabine Fuller
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Descriptive Title for your Table

Type of Solution	Rate (mL/min)
Ale Red Bull	7.75
Ale 20% Sucrose	8.25
Ale Water	0.25
Wine Red Bull	9.5
Wine 20% Sucrose	8.25
Wine Water	0.25
Cider Red Bull	3.2
Cider 20% Sucrose	7.4
Cider Water	0

Table 1. This table displays the fermentation activity of various yeast types when exposed to three different solutions: Red Bull, 20% sucrose, and water.

Rate of Different Types of Solutions

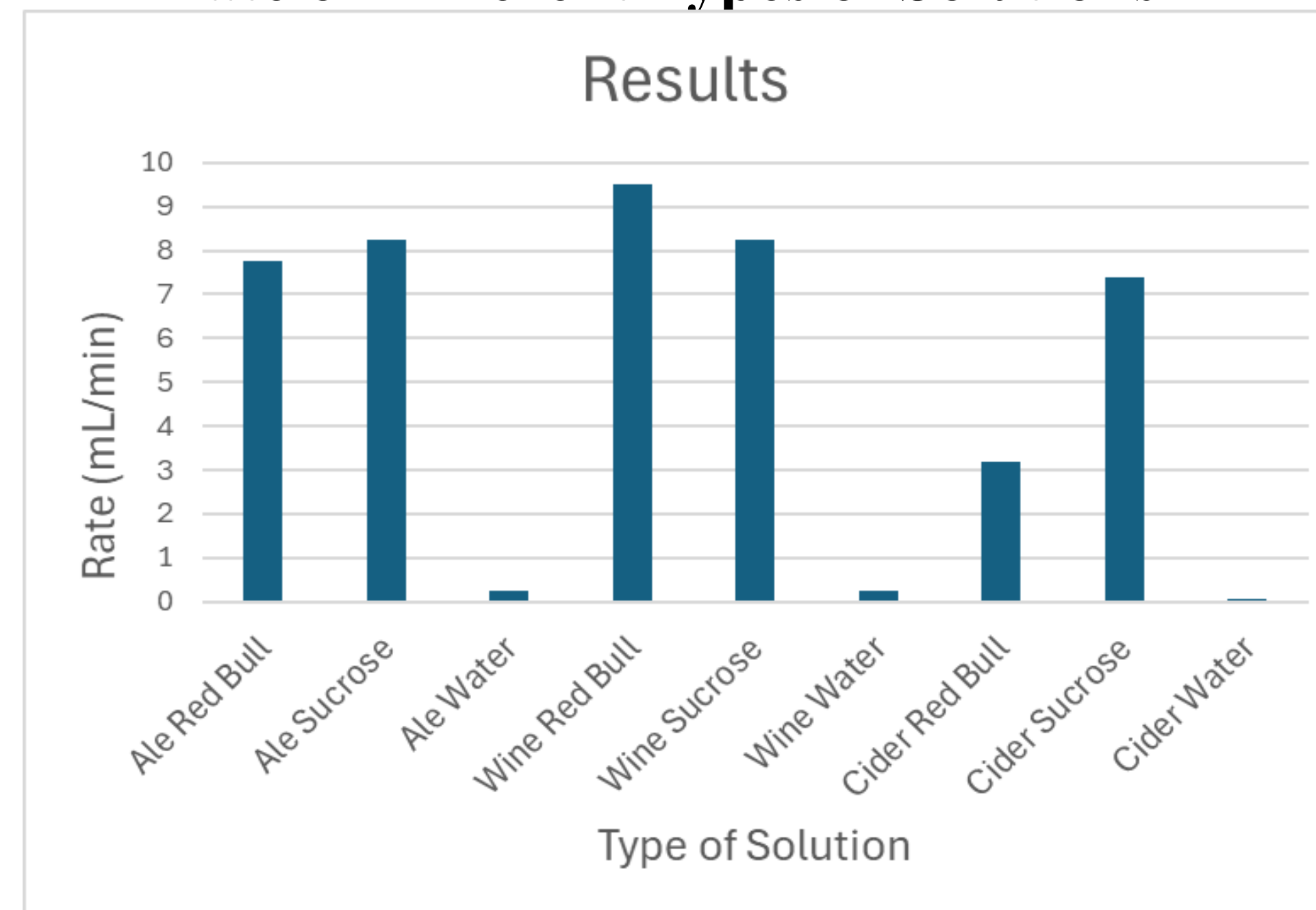


Figure 2. The graph compares the rate (mL/min) of different types of solutions, including Ale, Wine, and Cider mixed with Red Bull, Sucrose, or Water.

Discussion

As we predicted, the Red Bull solutions for all the 3 yeasts had higher growth rates than that of the yeast mixtures with the water. What we didn't predict was the mixed results when comparing the growth rates of the Red Bull solutions with the growth rates of the 20% Sucrose solutions. The ale yeast/Sucrose solution had a higher growth rate than the ale yeast/Red Bull solution, and the same went for the cider yeast solutions, but this wasn't the case for the wine solutions; in fact, the wine yeast/Red Bull solution had a *higher* growth rate than the wine yeast/Sucrose solution. The wine solutions were the only ones to support our original hypothesis.

There could be a few reasons why the results were mixed. It could have been because more than 2 trials were needed, an error in mixing the solutions, or simply because the different kinds of yeasts might ferment differently when mixed with the Red Bull solution, as we used different yeasts that were meant for ale, wine, and cider.

The results of our experiment seem to show that different kinds of yeasts ferment differently when mixed with a 50% Red Bull solution, but future researchers can prove or disprove our findings by replicating our experiment with more trials to get more accurate results.

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References/ Work Cited

Baker, B. H. (2019, October 19). *Yeast and Fermentation: A story of fungus and farts*. The Black Hat Baker. <https://theblackhatbaker.com/2019/10/18/yeast-and-fermentation-a-story-of-fungus-and-farts/>

Bailey. (2024, August 6). The role of yeast in wine fermentation: A closer look - Wiens Cellars. *Wiens Family Cellars*. <https://www.wiencellars.com/the-role-of-yeast-in-wine-fermentation-a-closer-look/?srsltid=AfmBOoovMN6nazg4KVvMug3JYMcar7cgJ9JSICX09MhcPNrRTSyCpt0S>

Superadmin. (2023, October 11). *Yeast Fermentation - Wyeast lab*. Wyeast Lab. <https://wyeastlab.com/resource/home-enthusiast-yeast-fermentation/>

Prezi, V. O. O. (n.d.). *the effect of yeast on energy drink*. prezi.com. <https://prezi.com/p/yljklicy9kwh/the-effect-of-yeast-on-energy-drink/>

Brungard, M. (2020, February 8). *Brewing water and yeast | Bru'n Water*. Bru'n Water. <https://www.brunwater.com/articles/brewing-water-and-yeast>