Feeding Yeast Essay, Research Paper

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Introduction

My experiment was with yeast and the best food for it. I wanted to know what would make the yeast grow better. I used corn syrup, gelatin, grape juice and flour mixed with water. I thought that the corn syrup, which is high in processed sugars, would produce the make the most carbon dioxide gas. Carbon dioxide is a by-product made when yeast reproduces. The flour, which is high in starch, I expect to produce some carbon dioxide and the gelatin, high in protein, not do much. And I expected the grape juice, which is high in natural sugar to be the food yeast doesn’t like and make the least gas. The information that I discovered through this experiment I hope to use to increase my comprehension of baking techniques.

Experimentation

For the actual experiment, I used four (4) ICB root beer bottles, 4 balloons, yeast and the yeast foods- corn syrup, flour/water, gelatin, and grape juice. The yeast was a solution-6+ teaspoons of yeast per cup of very warm (105. to 115.) water. Into all four bottles I put four tablespoons (tbsp.) of the yeast solution. Put + cup of corn syrup into bottle one, along with the yeast solution. Into bottle two goes + cup of water and + cup of flour, and the yeast solution. Next, mix the gelatin according to directions on the package, about one-tablespoon of powder to + cup of water. The + cup of the gelatin goes into the 3rd bottle, along with 4 tbsp. of the yeast solution. Into the 4th and final bottle put in + cup of 100% grape juice and the 4 tablespoons of yeast solution. Slip a balloon over the mouth of each bottle far enough so that no gas can escape. Lay all the bottles on their sides in as warm a place as you can find (85. is ideal). In 15 min. take your first measurement. Take some string and wrap it around the balloons, then measure the length of the string to determine the circumference of the balloons. The balloon with the largest circumference will contain the most gas, and therefor contain the best food for the yeast. Take measurements every 15 min. or half hour until the balloons stop growing, in about 5 hours.

Discussion

My experiment is based on one done by the French scientist Charles Cagniard de la Tour in 1857. I used ingredients sometimes used in bread making so as to see what would help yeast grow, and what wouldn’t. After about an hour of measuring the balloons every 15 minutes, it got boring. I noticed that sometimes it looked a lot bigger, but when I measured it, it grew only a little. This problem might stem form the fact that I couldn’t put the string at the exact spot where it was widest every time, so that makes for an unknown margin of error, that in real scientific circles would be unacceptable, but since I only wished to know which food allowed the yeast to grow the most, it becomes an acceptable margin of error. If I had to repeat this experiment, I would increase the number of tests done and the number of food types used. Also I would monitor the temperature to see if it was at, above, or below the optimal temperature for yeast (85.F). And possibly what retards yeast growth, instead of aiding the growth of the yeast.

Conclusion

The best food for the yeast was the grape juice, which is high in natural sugars. The gelatin was the worst; almost no response came from it. The corn syrup and flour were close together, but the sugars in the corn syrup were partially processed, inhibiting the growth of the yeast. Therefor, foods that are high in natural sugars are good yeast foods, processing sugar breaks down the sugars into parts unusable by the yeast, and protein is not needed for yeast growth and production.

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Use and care guide for Bread and Butter Maker

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