CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
Forest R. Monroe

Project Number
22885

Project Title
Yeast's Food of Choice

Abstract

Objectives/Goals
My objective is to determine what type of carbohydrate will cause bakers yeast to produce the most carbon dioxide.

Methods/Materials
The four carbohydrates I tested were fructose, dextrose, sucrose, and corn starch. A 10% yeast solution was added to a 10% solution of the first type of carbohydrate (giving a 5% solution of each) and 10 mL was put in each of four fermentation tubes. After an hour I checked the level of the CO(2) production. I| then repeated that process for each of the other carbohydrates.

Results
The monosaccharides, (dextrose and fructose) produced 6.35 mL and 6.5 mL of CO(2) respectively, while the disaccharide (sucrose) produced 4.25 mL. The polysaccharide (corn starch) produced only .2 mL.

Conclusions/Discussion
Fructose outperformed dextrose by a slim margin, but it is possible this difference would be narrowed with many additional trials. The difference between the mono- and disaccharides was much larger because the yeast had to break the bond between the glucose and the fructose that make up a sucrose molecule. Corn starch produced almost no CO(2), probably because it was too complex to be digested by yeast.

Summary Statement
My project is to determine what type of carbohydrate (fructose, dextrose, sucrose, or corn starch) will cause bakers yeast to produce the most carbon dioxide.

Help Received
Science teachers loaned fermentation tubes; edited project, and gave advice on revisions; Mother helped cut foam core and glue project together.