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Making Food Using Fermentation



What is fermentation?

Fermentation is a process done by very tiny living things such as bacteria and yeast, which breaks down different types of sugars into carbon dioxide, alcohol, and energy. It can be used to create many things including wine, bread, yogurt, and beer. Fermentation is an anaerobic process. That means that the entire process does not use oxygen. If the bacteria or yeast being used is exposed to oxygen, the process will not work.

Interesting Fact!

There are 1,500 different species of yeast currently identified.



- O₂ =



What are the different types of fermentation?

There are two main types of fermentation:

Reading Sample

TWF

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Fermentation: A chemical process where sugars are changed into energy, acids, alcohol and gases without oxygen being available. It is done in bacteria and yeast cells as well as in our own muscle cells.

How is bread made?

Bread is made with flour and water along with baking powder (or baking soda) and yeast. The yeast feeds on the sugars found in the flour. First, the yeast uses oxygen to change the sugar into water and carbon dioxide. Once it runs out of oxygen, the yeast continues to break down the sugars without oxygen and produces a small amount of alcohol. Any alcohol produced, however, boils away during baking.



How is yogurt made?

Reading Sample

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How is wine made?

Wine is made with grapes and yeast. Grapes are picked and then squeezed so that all their juices can be collected. The yeast creates alcohol and carbon dioxide by breaking down the sugars found in the grape juice. The carbon dioxide is removed and the wine is bottled. The type of wine created depends on the grape that was used. For example:

- Chardonnay is a white wine made from the chardonnay grape.
- Merlot is a red wine from the merlot grape



Lactic Bacteria: Bacteria that eats lactose, a sugar found in milk.

Beer fermentation:

To make beer you need a source of sugar (the wort), yeast and a container that keeps air out to hold it all. To make beer, you mash up the barley (a grain from the grass family) and remove the sweet inner liquid called the wort. You then add the wort to the yeast in a sealed container with no air and allow the yeast to eat the sugars for about two weeks at 68°F (20°C). Without using oxygen, the yeast produces ethyl alcohol and carbon dioxide inside the container. Once fermentation is complete, the yeast cells fall to the bottom of the fermenter and are removed. During the process, some of the carbon dioxide produced is removed while some of it is kept inside the container. This is what gives beer its carbonation like Soda Pop.



Field of barley



Airtight, fermentation tanks

Reading Comprehension Questions:

1. What
2. What are the two main types of fermentation?
3. Explain
4. What does it mean that fermentation is anaerobic?
5. List
6. Which
7. Briefly, explain how bread is made.
8. What three things do you need to make beer?

Extension Questions:

Use your search engine to answer questions 9 and 10:

9. How is blue cheese fermented?
10. What is the difference between still wine (regular white or red wine) and sparkling wine (a.k.a. Champagne)?
11. Make a

Reading Sample



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TWFSAMPLE

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