

# What is Fermentation?

In a general sense, fermentation is the conversion of a carbohydrate such as sugar into an acid or an alcohol. More specifically, it can refer to the use of yeast to change sugar into alcohol or the use of bacteria to create lactic acid in certain foods. This process occurs naturally in many different foods given the right conditions, and humans have intentionally made use of it for many thousands of years.

The earliest uses of fermentation were most likely to create alcoholic beverages such as mead, wine, and beer. These beverages may have been created as far back as 7,000 BCE in parts of the Middle East. The fermentation of foods such as milk and various vegetables probably happened sometime a few thousand years later, in both the Middle East and China. While the general principle is the same across all of these drinks and foods, the precise methods of achieving it, and the end results, differ.

Beer is made by taking a grain, such as barley, wheat, or rye, germinating and drying it, and pulping it into a mash. This mash is then mixed with hot water, and some fermentation begins. After being further treated, the liquid is transferred to a vessel, where yeast is added to the mixture. This yeast “eats” the sugar present in the mash and converts it into carbon dioxide and alcohol. After a few weeks of fermentation and a further period of conditioning, the beer is ready to be filtered and consumed.

Wine is created using a similar method that also involves fermentation. Grapes are crushed to release the sugar-rich juices, which are then either transferred quickly away from the skins or left to rest for a time to absorb some of the flavor, tannins, and color of the skins. Yeast is then added, and the grape juice is allowed to ferment for a number of weeks, at which point it is moved to different containers and processed at a slower rate, and eventually aged or bottled.

Pickling foods, such as cucumbers, may be accomplished by submerging the vegetable one wants to pickle in a salty water solution with vinegar added. Over time, bacteria create the lactic acid that gives the food its distinctive flavor and helps to preserve it. Other foods can be pickled simply by packing them in dry salt and allowing a natural fermentation process to occur.

Milk can also be cultured, and people have been using this process with dairy products for nearly 5,000 years. It is speculated that early dairy products, such as yogurt, was the result of a natural processes that occurred when the milk was cultured by bacteria that dwelt in skin sacks used to store dairy. Yogurt these days is made by adding a number of special bacteria, such as *L. acidophilus* and *L. bulgaricus* to milk and keeping it at the proper temperature. The bacteria begin converting the sugar in the dairy to lactic acid, eventually creating what we know as yogurt.

<http://www.wisegeek.org/what-is-fermentation.htm>

Use the following annotations while reading the article.

SYMBOL	MEANING
*	This is important
<u>underline</u>	Key word or detail
✓	I understand this question/idea
○	Unfamiliar word
?	I don't understand...
!	That's surprising or new info!
∞	I made a connection.
Words & Comments	"I'm thinking..."

Write a summary of the article below.

---



---



---



---



---



---



---