

## Brief Origin and History

Humans have been controlling the fermentation process for thousands of years, primarily in the form of fermented beverages in the earliest days. Evidence of a fermented alcoholic beverage made from fruit, honey, and rice found in Neolithic China dates back to 7000-6600 BCE. Wine-making dates to around 6000 BCE in Georgia, in the Caucasus region of Eurasia. There is also strong evidence that people were fermenting beverages in Babylon around 3000 BCE.

Even before fermented alcoholic beverages were developed, humans were fermenting a type of food with notoriously poor holding qualities – dairy. Particularly, the milk of camels, goats, sheep, and cattle was naturally fermented as far back as 10,000 BCE. It's likely that the fermentation occurred spontaneously, rather than intentionally, due to naturally existing microflora present in the milk. The subtropical climate where this dairy fermentation took place likely played a large role in its occurrence, as thermophilic lactic acid fermentation favors the heat of this climate. It has been suggested that the first yogurts were produced in goat bags draped over the backs of camels in the heat of North Africa, where temperatures around 110°F during the day made ideal conditions for fermentation to occur.

It wasn't until the mid 1800s, though, that people understood what was happening to make their food ferment. In 1856, a French chemist by the name of Louis Pasteur connected yeast to the process of fermentation,

making him the first zymologist – or someone who studies the applied science of fermentation. Pasteur originally defined fermentation as, “respiration without air,” and he understood by his observations that fermentation never occurred in the absence of simultaneous cellular propagation and organization. At this time, fermentation was still being used solely to increase the holding and storing properties of food.

It wasn't until 1910 that fermented foods were first considered as beneficial to health. A Russian bacteriologist, Elie Metchnikoff, noted that Bulgarians had an average lifespan of 87 years, which was exceptional for the early 1900s. In inspecting aspects of the Bulgarian lifestyle that may have set them apart and contributed to the long lifespan, Metchnikoff identified a greater consumption of fermented milks than in other cultures. He named a bacteria found in these fermented milks *Bulgarian bacillus*, and he inspired a surge in the consumption of fermented milks by attributing many benefits of good health and longevity to this strain of bacteria. *Bulgarian bacillus*, later named *Lactobacillus bulgaricus*, was shown to be unable to survive in the human digestive system by Leo F. Rettger of Yale in 1921. This discovery caused a fall-off of the fermented food phenomena. Rettger continued to investigate different strains of *Lactobacillus*, however, concluding in 1935 that certain strains of *Lactobacillus acidophilus* not only could survive the environment of the human gut – they were very active!

In the last 40 years or so, extensive research has been conducted examining the health benefits of consuming friendly bacteria. There appear to be linkages between consuming these friendly bacteria and improved digestion and detoxification, among other areas. Our modern food culture reflects these findings in the popularization of “probiotic” products. A probiotic is simply a food that contains those friendly bacteria. Walk down the aisles of any supermarket and you’ll see products labeled with this word – everything from yogurts to dietary supplements to beverages. Fermented foods, as Pasteur determined, are naturally high in these friendly bacteria. Just like fashion, food tends to go in trends. Last year saw a revitalization of the 1910s fermented foods craze. [Some sources](#) even say fermented foods were the number one 2013 food trend!

Let’s return to 1900 for a moment, though, and forget about the possible health benefits derived from eating fermented foods. In 1900, fermentation was a method of food preservation. Fermenting foods provided a way to store them without the need for refrigeration. While farm wives in 1900 may not have been making kimchi or kombucha, they were certainly feeding their families fermented foods such as cheese, bread, beer, and vinegar. Without giving you a full-on microbiology lesson, the basic principles of food preservation by fermentation depend on the transformative action of microbes and the manipulation of environments to encourage the action of certain desired microbes and discourage the presence or action of less desirable microbes. Fermentation is an *anaerobic* process, which means it occurs in an

airless environment. The desirable bacteria thrive in this oxygen-free environment digesting sugars, starches, and carbohydrates and releasing alcohols, carbon dioxide, and organic acids (which are what preserve the food). The undesirable bacteria that cause spoilage, rotting, and decay of food can't survive in this anaerobic environment.

When considering fermenting your own foods, it is important to remember that fermentation is, essentially, controlled decay. It creates very strong, compelling flavors, which can be an acquired taste for some and culturally subjective for others. Fermented food is neither fresh nor rotten, and it is up to the personal tastes of the fermenter to decide what is palatable. Get excited about fermented foods. Get experimental. If not for the health benefits, then because fermented foods are just plain tasty, not to mention a great way to preserve your garden harvest.