ISSN: 1948-5948
Journal of Microbial & Biochemical Technology

OPEN ACCESS Freely available online

Commentary

Role of Microbial Fermentation in Fermented Foods

Milton Burns*

Department of Biochemistry, Medical University of South Carolina, South Carolina, USA

DESCRIPTION

Fermentation is the enzymatic decomposition and utilization of foods, especially carbohydrates, by microorganisms. Fermentation occurs throughout the digestive tract of all animals, but the intensity of fermentation depends on the number of microorganisms. The number of microorganisms is generally highest in the large intestine. With the exception of some species of the proventriculus (ruminants), the large intestine is the most important place for fermentation in terms of quantity. In addition, there are significant differences in the contribution of fermentation to the energy production of different species. Fermentation tends to produce fewer calories in carnivores such as dogs and cats, and even omnivores such as humans, but in herbivores, fermentation is a way of life.

Cellulose is a component common to the diet of many animals, including humans, but the mammalian cells that produce cellulase are unknown. Several types of bacteria in the colon synthesize cellulase and digest cellulose. Importantly, the main end products of microbial digestion of cellulose and other carbohydrates are volatile fatty acids, lactic acid, methane, hydrogen, and carbon dioxide. Therefore, fermentation is the main source of intestinal gas.

Fermentation-produced volatile or short-chain fatty acids (particularly acetic acid, propionic acid, and butyric acid) are not only metabolized in the intestinal epithelial cells, but also absorbed by diffusion, thereby contributing to systemic energy metabolism increase. The concentration of volatile fatty acids in the colon is similar in mammals, but the importance of microbial fermentation for energy production varies greatly from species to species due to the large differences in the relative size of the colon. Fermentation also reduces the energy required for cooking and helps to make safer products. Therefore, microbial activity plays an important role in food fermentation by demonstrating changes in the chemical and physical properties of food. Fermented foods have several advantages.

1. Fermented foods have a longer shelf life than the original foods.

2. Improvement of sensory properties Example: Cheese has improved sensory properties in terms of taste compared to raw substrate milk.

3. They remove harmful or unwanted ingredients from the raw materials.

4. The presence of fermenting microorganisms improves nutritional properties. Indigestible substances release nutrients trapped in both plant structure and cells. This event occurs especially with a single seed and grain. During the milling process, the cellulose and hemicellulose structures surrounding the endosperm (that is, rich in proteins and digestible carbohydrates) were physically degraded to release nutrients. Raw milling is used in underdeveloped areas to extract nutrients, but it is not sufficient to derive full nutritional value from plant products.

5. The fermentation process reduces the cooking time of food. With the value of fermented dairy products Sour milk, yogurt, acidophilus milk, and other similar dairy products are much more popular because they are more nutritious than plain milk. Proteins, vitamins, carbohydrates, and some fats vary in the quality and quantity of fermented milk, but the mineral composition remains the same.

6. Fermented products show higher antioxidant capacity *in vitro*. For example, fermented milk and yogurt exhibit higher antioxidant properties than milk because of the release of biopeptides following the proteolysis of milk proteins, especially α-casein, α-lactalbumin, and β-lactoglobulin. increase

Fermenting microorganisms are mainly Lactic acid bacteria (such as *Enterococcus, Streptococcus, Leuconostoc, Lactobacillus, Pediococcus*) yeast and mold (*Debaryomyces, Kluyveromyces, Saccharomyces, Geotrichium, Mucor, Penicillium* and *Rhizopus species*). Around the world, fermented foods change the shape of nature contribute to improved taste and high quality nutritional properties, without much information or understanding of microbial function, for thousands of years in the human diet. With a detailed review of the potentially cognitively influential changes in fermented foods, this paper can comprehensively promote microbial and biochemical changes in fermented foods, and the overall microbial to fermented foods. Helps you understand the beneficial effects.

Correspondence to: Milton Burns, Department of Biochemistry, Medical University of South Carolina, South Carolina, USA, E-mail: miltonburns13@musc.edu

Received: 03-Jan-2022, Manuscript No.JMBT-22-477; **Editor assigned:** 05-Jan-2022, Pre QC No. JMBT-22-477 (PQ); **Reviewed:** 19-Jan-2022, QC No JMBT-22-477; **Revised:** 24-Jan-2022, Manuscript No. JMBT-22-477(R); **Published:** 31-Jan-2022, DOI: 10.35248/1948-5948.22.14.477.

Citation: Burns M (2022) Role of Microbial Fermentation in Fermented Foods. J Microb Biochem Technol. 14:477.