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Traditional Bulgarian Dairy Food

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Abstract

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Traditional Bulgarian dairy food is described in the chapter. One of the most famous products is Bulgarian yogurt, produced with *Lactobacillus bulgaricus*. The chapter also describes other well-known Bulgarian traditional dairy products like katyk or *krotmach* (*krutmach*, *kurtmach*), a specific national dairy product with a salty-sour taste, typically prepared in Bulgaria. Bulgarian white cheese sirene is a variety of the feta cheese that may only be produced in Bulgaria, and kashkaval is the typical yellow cheese of Bulgaria. Ayran or airan is a yogurt drink, very popular in Bulgaria and many other countries in the Balkan region and further east. In general, it is a mixture of yogurt, water, and salt. Tarator is Bulgarian typical milk product—it is a kind of a cold soup made of yogurt and cucumber (dill, garlic, walnuts, and sunflower oil are sometimes added).

Keywords

Bulgarian yogurt

Lactobacillus bulgaricus

Bulgarian dairy food

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8.1. Introduction

Traditional Bulgarian food is mostly based on the diets of the stockbreeders and land tillers (farmers who cultivate the land) from the historical and cultural regions of the Balkans, the Caucasus, and Hither Asia, as well as from the territories inhabited by the Slavs. The familiarity is associated with the use of different fermentation agents (for dough, milk, fruit, and vegetable manufacturing).

As described by Markova (2006), the food of the Eastern Slavs—typical land tillers—is based on yeast-leavened dough products, flour porridges, fermented fruit, vegetables and drinks, and pork. They used two kinds of milk yeast (ferment and rennet) as well as the ferment for wine preparation. The usual menu of the typical stockbreeders (the population of Central Asia and Hither Asia) was based on the yeastless dough and fermented dairy foods.

Less known or used were fermented vegetables and fruit (dried rather than fermented fruit is preferred).

Most of these food products are spread over Bulgarian traditional diet. In the past the bigger part of Bulgarian people used to be tillers and stockbreeders, which explains the availability of raw materials like milk, meat, fruits, and vegetables.

One of the most popular Bulgarian traditional foods is milk-based products.

As many sociological and ethnological studies underline (Markova 2006; Keliyan 2004; Murdzheva-Pancheva 2007), the fermented dairy foods take an important place in Bulgarian diet.

There are a number of fermented milk products: yogurt, katyk, cheese, kashkaval, ayran, etc. The most popular recipes for preparation vary depending on the sources and locations.

8.2. Bulgarian Yogurt

Kiselo mlyako is a Bulgarian yogurt.

The Bulgarian yogurt is a unique and famous worldwide lactic acid product. For many years it has been considered a food that helps keep people's life longer and healthier.

When and where it came from is still unknown. One of the theories for its origin is connected to the Thracians. Ancient Thracia had rich soil, vegetation, and pastures which contributed to the development of sheep farming, so the basic domestic animal of Thracians was sheep. They discovered that the milk "spoiled" from lactic acid lasted longer than the raw milk. By adding spoiled yogurt to boiled milk, they produced the well-known fermented milk referred to as "prokish."

Another theory is connected to the proto-Bulgarians. It is assumed that the Bulgarian-type lactic acid milks originate from the lactic acid drink "kumis," which the proto-Bulgarians prepared from mare's milk. When they settled into current Bulgarian territories and hoarding sheep, they began to make "kumis" from sheep milk. Proto-Bulgarians produced lactic acid milk by the name of "katuk" as they curdled raw sheep milk with cheese whey. This product usually was produced at the end of the summer when the milk contains higher content of dry substances. The katuk was considered delicious and they lasted the whole winter.

The uygurits who lived in the Sindgan region in Northwest China still call the lactic acid milk "kuthuk." They make it from both mare's milk and sheep's milk. The Bulgarian name suggests the proto-Bulgarian origin of yogurt. Neither one of these theories is confirmed.

Bulgarian acid milk is first mentioned in the literature during the eighth century, by the Turkish name yogurt. Genghis Khan (1206–1227) used yogurt as food for his army and as a means to preserve meat. The milk was stored in sheep's stomachs, and the microflora present in milk undergoes lactic acid fermentation, resulting in acid milk.

In Western Europe yogurt owes its fame to the French king François I. He suffered from an incurable diarrhea and asked for help from his ally, the Ottoman sultan Suleiman the Great. He sent him a doctor who managed to cure him with a diet of yogurt. In his gratitude the French king spread the information about the food that helped him all over Europe.

The first Bulgarian ever to study the microflora of Bulgarian yogurt was Stamen Grigorov (1878–1945), who was a student of medicine in Geneva. In 1905 he describes it as a one rod- and one round-shaped bacteria. In 1907 the rod bacteria is called *Lactobacillus bulgaricus*. In 1917 Orla-Jensen proved that in the production of the Bulgarian milk, not only *Lactobacillus bulgaricus* participates,

but *Streptococcus thermophilus* also has a role.

The unique characteristic of yogurt is that it contains cultures of *Streptococcus thermophilus* and *Lactobacillus delbrueckii* ssp. *bulgaricus*.

All dairy fermentations use lactic acid bacteria for acidification and flavor production.

Although lactic acid bacteria are genetically diverse, common characteristics of this group include being gram-positive, non-spore forming, non-pigmented, and unable to produce iron-containing porphyrin compounds (catalase and cytochrome); growing anaerobically but being aerotolerant; and fermenting sugar with lactic acid as a major end product. Lactic acid bacteria tend to be nutritionally fastidious, often requiring specific amino acids, B vitamins, and other growth factors but unable to utilize complex carbohydrates.

There are currently 11 genera of lactic acid bacteria, of which four—*Lactobacillus*, *Streptococcus*, *Lactococcus*, and *Leuconostoc*—are commonly found in dairy starter cultures. A fifth genus, *Enterococcus*, is occasionally found in mixed-strain (undefined) starter cultures. Important phenotypic taxonomic criteria include morphological appearance (rod or coccus), fermentation end products (homofermentative or heterofermentative), carbohydrate fermentation, growth temperature range, optical configuration of lactic acid produced, and salt tolerance.

Lactic acid bacteria are generally associated with nutrient-rich habitats containing simple sugars. These include raw milk, meat, fruits, and vegetables. They grow with yeast in wine, beer, and bread fermentations. In nature, they are found in the dairy farm environment and in decomposing vegetation, including silage.

The only *Streptococcus* sp. useful in dairy fermentation is *S. thermophilus*. This microorganism is genetically similar to oral streptococci (*S. salivarius*) but can still be considered a separate species. *S. thermophilus* is differentiated from other streptococci (and lactococci) by its heat resistance, ability to grow at 52 °C, and ability to ferment only a limited number of carbohydrates (Axelsson 1993).

The *Lactobacillus* genus consists of a genetically and physiologically diverse group of rod-shaped lactic acid bacteria. The genus can be divided into three groups based on fermentation end products. Homofermentative lactobacilli exclusively ferment hexose sugars to lactic acid by the Embden-Meyerhof pathway. They do not ferment pentose sugars or gluconate. These are the lactobacilli (*Lb. delbrueckii* subsp. *bulgaricus*, *Lb. delbrueckii* subsp. *lactis*, and *Lb. helveticus*) commonly found in starter cultures. They grow at higher temperatures (45 °C) than lactobacilli in the other groups and are thermophilic. Another member of this group, *Lb. acidophilus*, is not a starter culture organism, but it is added to dairy foods for its nutritional benefits.

Facultative heterofermentative lactobacilli ferment hexose sugars either only to lactic acid or to lactic acid, acetic acid, ethanol, and formic acid when glucose is limited. Pentose sugars are fermented to lactic and acetic acid via the phosphoketolase pathway. Yogurt is made using a combination of *S. thermophilus* and *Lb. delbrueckii* subsp. *bulgaricus*. These organisms grow in a cooperative relationship, resulting in rapid acidification. The presence of lactobacilli stimulates growth of the more weakly proteolytic *S. thermophilus*, because lactobacilli liberate free amino acids and peptides from casein. *S. thermophilus*, in turn, stimulates growth of *Lb. delbrueckii* subsp. *bulgaricus*, possibly by removing oxygen, lowering pH, and producing formic acid and pyruvate. Yogurt may also contain *Lb. acidophilus* or other nutritionally beneficial cultures. The most important characteristics for yogurt cultures are rapid acidification, production of characteristic balanced flavor, and ability to produce the desired texture. The ideal yogurt flavor is a balanced blend of acidity and acetaldehyde. This is achieved through culture selection, balance of rod to coccus ratio, and fermentation control.

The western world calls it Bulgarian yogurt, but in its homeland, Bulgaria, it's called sour (kiselo) milk (mlyako).

Bulgarian yogurt (Kiselo mlyako) can be produced from fresh milk from cows, sheep, goats, and buffalo; the lowest fat content is found in cows' yogurt, while buffalo has the highest fat content. It is used as part of a number of main courses as well as being consumed as a dessert.

Bulgarian yogurt may be organic if the animals are kept organically, and it is an excellent diet food and source of "good" bacteria and proteins that are needed in the digestive tract, which are necessary for the body to function at its best. These good bacteria prevent the growth of harmful bacteria that cause bacterial infections and diseases. They also promote digestive health and boost the immune system. It helps to prevent osteoporosis and reduces the risk of high blood pressure. Active cultures help certain gastrointestinal conditions including lactose intolerance, constipation, diarrhea, colon cancer, inflammatory bowel disease, pylori infection, and many others. Yogurt is nutritionally sound and it also makes you feel full faster.

8.2.1. Home Preparation of Bulgarian Yogurt

Bring the milk to boil, put in jars or other large containers, and wait until it cools down. It has to be hot but cold enough so you can put your finger in it and hold it there for a few seconds without burning yourself.

Dilute the starter bacteria in some lukewarm milk and add it to the jars. Stir well. Cover the jars with blankets and tuck them in good. Do not put the lids on the jars so the milk can breathe. Let them stay overnight or for about 8 h. After this the yogurt can be stored in a refrigerator.

8.2.2. Yogurt Fair

Bulgarians are proud of their yogurt and even have a special yogurt fair. If you come to Bulgaria, to the town of Razgrad in July, you can feel the unique atmosphere of the traditional yogurt fair—the only one of its kind in the world. There are competitions for homemade yogurt and traditional dairy dishes and international folk concerts in the open. Before performing on the stage, all participants march along the main boulevard in Razgrad in colorful costumes performing music and dances. Every year at the bazaar in the central town square, producers and distributors offer a wide range of different trademarks of yogurt and milk products.

8.3. Katyk

Katyk or *krotmach* (*krutmach*, *kurtmach*) is a specific national dairy product with a salty-sour taste, typically prepared in Bulgaria. The name actually is used for several products with similar taste but produced in different ways.

Katyk has a special reserved place on the table of the contemporary Bulgarian family. It is an object of scientific investigations related to its influence on health, together with some other traditional dairy products. In these products the species composition of lactic acid bacteria has more variability and inconstancy compared to commercially traded products. An investigation by Tserovska et al. (2002) has shown that 18 lactic acid bacterial strains can be isolated from homemade katyk. Nine of them were reported to belong to lactic acid cocci, and others were referred to genus *Lactobacillus*. The lactic acid fermentation, which these bacteria perform, has long been known and applied by people for making different foodstuffs. It plays an essential role in the production of all dairy products and is involved in the production of many other Bulgarian foods and drinks—sausages, pickles, boza, etc.

Traditionally, katyk is a dairy product that was obtained by inoculation of sheep's milk, with cheese used for yeast. The resulting product is durable and can be kept for several months. To obtain a thicker and denser product, the sheep's milk needs to be boiled on slow fire for several hours prior to inoculation.

An old recipe for katyk preparation is described in the ethnographic investigation of village Svoboda by Ivanka Kancheva Murdzheva-Pancheva. The starting material must be sheep's milk, collected in August, when milk is most dense. It is additionally thickened by boiling in a water bath. The milk is placed in a smaller container and immersed in a larger water tank. The small container containing the milk should not touch the outer tank. Milk must be boiled continuously until thickened to the desired consistency and form a thick surface cream. It needs to be stirred periodically with a wooden spoon. Once cooked, milk is removed from the water bath and allowed to cool while being stirred continuously. Once cooled, salt is added to taste. It is then continuously stirred every day to thicken the product.

Katyk can also be made with uncooked milk, but the cooked one is considered more delicious. In the case of uncooked milk, it is initially salted to taste and stirred every day, but it thickens more slowly.

After its preparation katyk must be stored in appropriate containers. In the past, it was usually stored in sheep skins—sheep skin that had been well washed with soap. After the katyk has been poured in the sheep skin pouch, the air is expelled, and it is stored in a cool, ventilated place. Today it may be stored in glass or plastic containers in a cool place. When katyk is stored in sheep skin, the residual liquid is released through the pores of the skin, which makes katyk more delicious.

Nowadays the name katyk often used for a more or less homogeneous mixture of yogurt and sheep's milk cheese with a possible addition of butter. This, of course, is not the original product.

A contemporary recipe from the Rodopy mountain region is as follows: a 5 L fresh sheep's milk is boiled in a water bath, then salted, and, when cool, mixed with 250 g of sheep cheese and 125 g melted butter. This mixture is then poured into a clay pot and stored.

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There is a similar recipe given in the blog of Bulgarian lady which gives the following as necessary ingredients:

- 5 L fresh sheep milk
- 2 full spoons homemade sheep yogurt
- 6–7 guts cheese yeast
- 250–300 g homemade sheep cheese
- 3 spoons salt

The way of preparation is as follows:

The milk is boiled in a water bath for approximately 2 h. Then, it is cooled so that it may be touched. In another bowl salt, yogurt, yeast, and some fresh milk are stirred well until salt is melted. Then, this mixture is poured in the container with the fresh milk and stirred well. Then, the crumbled cheese is added and the mixture is stirred again. The container is closed and set aside for 12 h. After this period it is stirred again. Then, it is allowed to drain well. Once drained, katyk is placed in jars and put in a

refrigerator to cool, and then it is ready for consumption.

8.4. Sirene

Bulgarian white cheese is a variety of feta cheese but can only be produced in Bulgaria. This is due to specific lactose-tolerant bacteria which convert milk into yogurt and then sirene. The bacteria are only found in this part of the world; hence, it is named *Lactobacillus bulgaricus*. Bulgarian white cheese is a brined goat, sheep, or cow cheese.

8.5. Kashkaval

Kashkaval is the typical yellow cheese of Bulgaria. Very similar to cheddar types of cheese, kashkaval is made of goat, sheep, or cow's milk. It is then aged for a certain period of time (about 6 months) to develop its very particular and defining flavor.

8.5.1. Homemade Kashkaval

Fresh milk (at least 3.5 % fat) without any additional ingredients needs to be pasteurized—heated to almost boiling temperature and then cooled to 37 °C. Ready-pasteurized milk can be used too. The process of pasteurization kills any harmful bacteria that would alter the taste of the cheese.

After cooling the protein of milk is coagulated with rennet—renin—derived from lamb ventricles or from some plants or synthetic. The process is referred to as curdling. Milk can also be “curdled” with adding a weak acid, for example, salt of lemon or vinegar but then missing bacteria that ultimately determine the taste of cheese during maturing, and the cheese ripens more slowly.

The cheese mass (white flakes) is then salted, leavened, and placed under a load to remove excess water and to increase density. Salting also helps to exude the water and increase tightness of cheese portions.

If the cheese mass is heated to 50–70 °C and kneaded, the result will be hard cheese, called kashkaval in Bulgaria.

After removal from the press, the cheese lump is salted periodically. Then, it is stored at around 10–12 °C for 20–45 days until it reaches “maturity.”

The ready cheese may be coated with paraffin or wax to prevent drying (immersed in the molten defensive wax).

8.5.2. Another Recipe

A popular in Bulgaria recipe says:

Five liters of homemade milk (non-pasteurized) is boiled. Pour in it three soup spoons crushed sea salt; stir well to dissolve the salt. Then, add one not-full soup spoon salt of lemon and stir the mixture for 10 min on weak fire. The resulting slurry is placed in a cloth to drain. After 12 h the slurry is pressed with a burden and put in the refrigerator.

After 2 days the cheese is ready for eating.

8.6. Ayran

Ayran or airan is a yogurt drink, very popular in Bulgaria and many other countries in the Balkan region and further east. In general, it is a mixture of yogurt, water, and salt. It originated as a way of preserving yogurt by adding salt. If you want to add some twist to it, you can try it with some finely chopped mint leaves mixed into the ayran. Ingredients are four cups yogurt, two cups water, and pinch of salt. Preparation is very easy—mix well, cool lightly, and the drink is ready for consumption.

8.7. Tarator

Tarator is typical Bulgarian milk product—it is a kind of a cold soup made of yogurt and cucumber (dill, garlic, walnuts, and sunflower oil are sometimes added). Tarator is very popular in Bulgaria, especially during the summer time. Home preparation of tarator is very easy: Ingredients are 1 long cucumber, chopped or grated (we prefer it peeled); 1 garlic clove, minced or mashed; 4 cups yogurt; 1 cup water; 1 teaspoon salt (we like it saltier); 1 tablespoon dill, finely chopped; 4 big pecans, well crushed; and 3 teaspoons olive oil. Preparation—put all ingredients together and mix well. When ready garnish with olive oil (or other favorite oil). Best when chilled. All Bulgarians and tourists like this famous summer soup tarator very much.

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