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RECIPE AND PRODUCTION TECHNOLOGY OF A CHEESE PRODUCT WITH A FUNCTIONAL COMPOSITION

Abstract

Floral cheese is a dairy product with a high nutritional value, which is prepared using a special technology and various mountain flowers are added. The process of its production consists of such stages as the preparation of milk, its coagulation, the formation of cheese mass, salting and ripening. Floral cheese is good for human health due to the fact that it is rich in protein, calcium, phosphorus and B vitamins. The probiotics contained in it improve the functioning of the digestive system, strengthen immunity and maintain the balance of the intestinal microflora. Along with this, floral cheese can be used in a variety of dishes, but due to the amount of salt it contains, in some cases, attention should be paid to its consumption.

Keywords: functional cheese, healthy nutrition, floral cheese, cheese production technology.

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Introduction

Floral cheese occupies an important place both in taste and in nutritional properties. Floral cheese is considered an organic and healthy food, as it is prepared using natural methods. The plant contained in cheese is rich in a number of vitamins and minerals, and is also useful with antibacterial and antioxidant properties. Floral cheese is a rich source of protein, calcium, phosphorus and B vitamins. These nutrients are essential for bone health, muscle development, nervous system functions, and energy production. The probiotics contained in flower cheese help the digestive system to function healthily by maintaining the balance of the intestinal flora. This helps prevent problems such as constipation, bloating, and indigestion. By providing a feeling of satiety, floral cheese reduces the desire to overeat. This can also help with weight control. The calcium and potassium in flower cheese support heart health by helping regulate blood pressure. Probiotics also strengthen the immune system and increase the body's resistance to infections. The proteins and carbohydrates contained in flower cheese help you to be more active

throughout the day, providing the body with energy.

Floral cheese can be used in a variety of dishes and snacks. It can be used as an ingredient in dishes and adds a special taste and aroma to dishes. In addition to adding flavor to salads, pasta, pizzas, sandwiches and omelets, it can be consumed both on its own and as a healthy snack with fruits and nuts. Floral cheese may contain high levels of salt. Therefore, it is important to pay attention to the amount consumed, especially for people with high blood pressure or kidney problems.

The richness of the flora of the Republic of Azerbaijan and the diversity of vegetation cover are related to its physical-geographical and natural-historical conditions, as well as the complex history formed under the influence of remote Floristic areas. Azerbaijan is home to a variety of mountain flowers due to its diverse climate and topography. In terms of the total number of species, the flora of Azerbaijan is significantly richer than in other republics of the South Caucasus. Plant species found in the republic make up 66% of the total number growing in the Caucasus.

Mountainous regions of Azerbaijan have different flora, including different varieties of mountain flowers. Mountain flowers are a diverse group of plants that have adapted to thrive in harsh, high mountain environments. These flowers are often characterized by their durability, vibrant colors and unique shapes. They can be found in mountain ranges around the world, from the Himalayas to the Andes. Many of these flowers are prized for their beauty and have cultural significance in various mountain communities.

Gulkhatmi flower (*Althaea officinalis*) is a valuable raw material that has been used since ancient times both as a medicinal plant and in food technology. It contains mucilage substances, flavonoids, vitamins and minerals, which makes it a promising component in the preparation of functional food products, especially in cheese production.

The technology for the production of cheese using the rosehip flower is based on the classic stages of cheese production, but differs in some specific additives. First, milk is standardized and pasteurized. Then the milk is cooled to a temperature of 30-35°C and fermenting bacteria are added. At this stage, the acidity of milk is regulated and optimal conditions are created for the formation of cottage cheese.

The flower is added to milk in pre-dried and crushed form or in the form of an extract. This additive can be introduced either directly at the stage of fermentation, or by mixing after the curd is formed. The plant's mucilages affect the structure of the cheese, creating a softer and more elastic consistency. At the same time, the flower of rosehip gives the product a unique light aromatic taste.

At later stages, the curd is cut, the whey is separated and the shaping process is carried out. The cheese is placed in molds, pressed and matured for a certain time. During ripening, the bioactive substances of the components of the rosehip are fixed in the composition of the cheese and functional properties are formed.

The health benefits of cheese enriched with rosehip flower are quite wide. The mucilage substances contained in the plant have a positive effect on the digestive system, protect the mucous membrane of the stomach

and intestines, and have an anti-inflammatory effect. These properties are especially useful for people with gastritis and other digestive system problems.

In addition, the rosehip flower has antioxidant properties. Flavonoids reduce oxidative stress in the body by neutralizing free radicals. And this helps to strengthen the immune system and prevent various chronic diseases. The proteins and calcium contained in cheese, on the other hand, support bone health and increase the body's nutritional value.

Cheese with the addition of gulkhatmi is also valued as a functional food product. Such products not only provide nutrients, but also have a positive effect on the physiological functions of the body. As a result, the cheese produced using the rosehip flower is an innovative dairy product of high value both in terms of technology and health.

Immortelle (*Helichrysum arenarium*) is a valuable medicinal plant that contains flavonoids, essential oils, phenol compounds and vitamins. Due to these properties, it is used not only in Phytotherapy, but also in the production of functional food products, especially fortified types of cheese. Cheese production using Immortelle is carried out on the basis of traditional technology, but differs in additional stages. At the first stage, milk is accepted, purified from mechanical impurities and standardized. The milk is then pasteurized and cooled to a temperature of 30-35°C. At this temperature, milk is fermented by acidity bacteria and prepared for the coagulation process. Unfermented flower is prepared in pre-dried and crushed form or in aqueous-extract form. The plant component can be added at the stage of fermentation of milk or after the formation of cottage cheese. In this case, the biologically active substances of the Immortelle are evenly distributed throughout the cheese mass. The essential oils and flavonoids contained in it give the cheese a light aromatic taste and a specific yellowish tint. At the next stage, the formed curd is cut, separated from the whey and placed in molds. After the completion of the pressing process, the cheese is salted and left to ripen for a certain time. During ripening, the bioactive



components of the Immortelle are integrated into the structure of the crop and increase its functional properties.

The health benefits of unfading cheese with flower additives are multifaceted. This plant has a choleric effect that improves the functioning of the liver and biliary tract, that is, it stimulates the digestion process by increasing the secretion of bile. This property is especially useful in the absorption of fatty foods. In addition, Immortelle has a powerful antioxidant effect. The flavonoids contained in it reduce the action of free radicals in the body and protect cells from oxidative damage. And this helps to strengthen the immune system and reduce inflammatory processes.

Immortelle also has antibacterial and anti-inflammatory properties. These properties support the balance of the intestinal microflora and improve the health of the digestive system. The proteins, calcium and other minerals found in the cheese itself are important for bone and dental health.

Goldenrod (*Hypericum perforatum*) is one of the important plants that has a rich chemical composition and is used both in folk medicine and in the preparation of functional food products. It contains flavonoids, hypericin, essential oils, tannins and various vitamins, which makes it a promising component in the food industry, especially in cheese making. The production of cheese using kyzylot is based on classical technology, but it is enriched with additional stages. First, milk is accepted, refined and standardized. The milk is then pasteurized and cooled to a temperature of 30-35°C. At this stage, lactic acid bacteria are added to ferment the milk and the optimal acidity level is formed.

Goldenrod is prepared in pre-dried and crushed form or in the form of an extract. The plant component can be added at the stage of fermentation or after the formation of cottage cheese. At this time, the bioactive substances of goldenrod enter the cheese mass and affect both the taste and functional properties of the product. Goldenrod gives the cheese a light bittersweet taste and characteristic aromatic property. At the later stages, the curd is cut, separated from the whey and placed in molds. After the pressing and salting processes, the

cheese is left to ripen for a certain time. During ripening, the active components of kyzylot are fixed in the structure of the cheese and increase its functional qualities.

The health benefits of cheese enriched with goldenrod are very wide. This plant has strong anti-inflammatory and antiseptic properties. Hypericin and flavonoids contained in it reduce inflammatory processes in the body and strengthen the immune system. In addition, goldenrod has a positive effect on the nervous system. It has a mild sedative property and can be useful in cases of stress, anxiety. These properties ensure that functional cheese supports not only physical, but also psychological health. Goldenrod also has an antioxidant effect, protecting cells from the harmful effects of free radicals. This helps prevent premature aging and reduce the risk of chronic diseases. The proteins, calcium and other nutrients contained in the cheese itself, on the other hand, support bone health and improve the body's overall nutrient balance.

Mountain tarragon (*Artemisia dracuncululus*) is a plant rich in fragrant and biologically active substances, widely used both in cooking and in folk medicine. It contains essential oils, flavonoids, vitamins (especially C and A), minerals and antioxidant compounds. Due to these properties, dagtarkhunu is considered a promising raw material in the production of functional food products, including enriched types of cheese. The production of cheese with dagestyrkhun is carried out on the basis of classical technology, but enriched with a vegetable additive. At the first stage, milk is accepted, purified and standardized. The milk is then pasteurized and cooled to a temperature of 30-35°C. At this stage, the fermentation process is started by adding lactic acid bacteria and an optimal environment for coagulation is created. Dagtarkhun is prepared in pre-dried and crushed form or in the form of an extract. The plant component is added either directly at the stage of fermentation, or after the formation of cottage cheese. At this time, essential oils and aromatic substances of dagestyrchun penetrate into the cheese mass, giving the product a unique pleasant aroma and taste. At the same time, plant components can affect the structure

of the cheese, making its texture softer and more elastic.

At the later stages, the curd is cut, separated from the whey and placed in molds. Pressing, salting and ripening processes are carried out. During ripening, the bioactive substances of *Dagestarchun* are fixed in the composition of the cheese and increase the functional properties of the product. The health benefits of cheese with the addition of *Dagestarchunu* are multifaceted. This plant has a positive effect on the digestive system, increases appetite and stimulates the secretion of gastric juice. These properties contribute to better absorption of food. In addition, *Dagestarchun* has an antibacterial and anti-inflammatory effect. The essential oils contained in it limit the development of harmful microorganisms and help maintain the balance of the intestinal microflora. And antioxidant substances protect the body from the effects of free radicals, contributing to the strengthening of overall health.

Dagestarchun can also have a mild calming effect on the nervous system and help reduce fatigue. The proteins, calcium and other nutrients contained in cheese, on the other hand, support bone and muscle health. The technological approaches carried out show that these plants can be successfully applied at different stages of cheese production – whether during fermentation or after the formation of cottage cheese. The resulting product differs in both structural, taste and aromatic properties and becomes more attractive to the consumer. At the same time, such cheeses are distinguished by their positive effect on health. They improve the functioning of the digestive system, strengthen the immune system, have anti-inflammatory and antioxidant effects. And this includes such products in the category of functional foods and increases their importance in daily nutrition.

The addition of flowers to cheese made from mountain flowers is one of the most important stages that determine both the technological and organoleptic properties of this product. This process is not only a simple mixing operation, but also includes several important steps, such as the correct selection of plants, their preparation and introduction into

the cheese Mass at the appropriate time. The resulting cheese turns out to have a unique aroma, taste characteristics and high nutritional value.

At the first stage, mountain flowers and aromatic herbs that will be used are carefully selected. These plants usually consist of species that grow in natural conditions, in mountainous and ecologically clean areas. When choosing plants, their freshness, degree of damage and odor intensity are taken into account. When only healthy and high-quality plants are selected, the quality of the final product is also high.

The collected flowers initially go through the stage of purification. At this stage, dust, soil and other foreign particles on the plants are removed by washing them with running water. The flowers are then laid out on a clean surface to dry. The drying process should be carried out in natural conditions, in places directly protected from the sun's rays, but well ventilated. This helps to preserve the color and aromatic properties of the plants. In some cases, flowers are not completely dried, but are used in a semi-dry state. This method is applied to obtain a fresher and richer aroma.

Dried or brought to a semi-dry state, the flowers are threshed at the next stage. This process ensures that the flowers spread more evenly in the cheese mass. Threshing can be carried out manually or with special tools. It is not necessary to chop it too finely, because at this time the structure of the plants can disappear and the aromatic substances can quickly evaporate. Medium-sized parts are considered optimal.

The addition of flowers to cheese is carried out after coagulation of milk. Milk coagulates with yeast at a certain temperature, turning into cottage cheese. This curd mass is cut with special tools, divided into portions and partially separated from the whey. It is at this stage that flowers are added. It is important to choose the right time for adding flowers, because when added too early, their beneficial substances may disappear along with the whey, and when added too late, they may not mix well with cottage cheese.

The added flowers are carefully mixed with the curd mass. The mixing process should

ensure an even distribution. This creates conditions for the same degree of aroma and taste in each part of the cheese. In some traditional methods, however, the folding method is used instead of blending. At this time, when placing the curd in the mold, it is laid out in layers, and flowers are sprinkled between each layer. This method gives both a more attractive result from a visual point of view and leads to a more pronounced feeling of the taste of flowers.

At a later stage, cottage cheese enriched with flowers is placed in molds and pressed. During the compaction process, excess whey is released and cheese begins to form. The molding process determines the final shape of the cheese and affects its texture. The degree of compression may vary depending on the type of cheese.

After that, the cheese goes through the salting stage. Salting can be carried out by dry salting or storage in a saline solution. Salt not only gives taste, but also provides microbiological stability and prolongs the shelf life of cheese. In some cases, a small part of the flowers is added to the surface of the cheese at the salting stage, which adds additional aroma.

At the final stage, the cheese is put on ripening. The ripening process is carried out under special conditions of temperature and humidity. In the process, essential oils and other aromatic substances contained in the flowers are spread throughout the entire mass of the cheese. As a result, the product acquires a rich taste and aroma. The ripening time varies

depending on the type of cheese and can last from several days to several weeks.

Thus, the correct preparation of mountain flowers and their addition to cheese at the appropriate stage directly affects the quality of the product. This process is based on both traditional knowledge and technological rules, resulting in cheese with high nutritional value and unique taste characteristics.

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Xırdaxanım İlham qızı KƏRİMOVA

Azərbaycan Dövlət İqtisad Universitetinin tələbəsi

FUNKSIONAL TƏRKİBLİ PENDİR MƏHSULUNUN RESEPTİ VƏ İSTEHSAL TEKNOLOGİYASI

Xülasə

Çiçəkli pendir xüsusi texnologiya ilə hazırlanan və müxtəlif dağ çiçəkləri əlavə edilən qida dəyəri yüksək süd məhsuludur. Onun istehsal prosesi südün hazırlanması, laxtalanması, pendir kütləsinin formalaşdırılması, duzlanması və yetişdirilməsi kimi mərhələlərdən ibarətdir. Çiçəkli pendir zülal, kalsium, fosfor və B qrupu vitaminləri ilə zəngin olduğuna görə insan sağlamlığı üçün faydalıdır. Tərkibindəki probiyotiklər həzm sisteminin fəaliyyətini yaxşılaşdırır, immuniteti gücləndirir və bağırsağ mikroflorasının tarazlığını qoruyur. Bununla yanaşı, çiçəkli pendir müxtəlif

yeməklərdə istifadə oluna bilər, lakin tərkibindəki duz miqdarına görə bəzi hallarda onun istehlakına diqqət yetirilməlidir.

Açar sözlər: funksional pendir, sağlam qidalanma, çiçəkli pendir, pendir istehsalı texnologiyası.

Хырдаханым Ильхам КЕРИМОВА

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РЕЦЕПТ И ТЕХНОЛОГИЯ ПРОИЗВОДСТВА СЫРНОГО ПРОДУКТА С ФУНКЦИОНАЛЬНЫМИ ИНГРЕДИЕНТАМИ

Резюме

Цветочный сыр-это молочный продукт высокой пищевой ценности, изготовленный по специальной технологии и с добавлением различных горных цветов. Процесс его производства состоит из таких этапов, как приготовление молока, его коагуляция, формирование сырной массы, засолка и созревание. Цветущий сыр полезен для здоровья человека, так как богат белком, кальцием, фосфором и витаминами группы В. Содержащиеся в нем пробиотики улучшают работу пищеварительной системы, укрепляют иммунитет и поддерживают баланс микрофлоры кишечника. Однако цветочный сыр можно использовать в различных блюдах, но в некоторых случаях следует обратить внимание на его потребление из-за содержания в нем соли.

Ключевые слова: функциональный сыр, здоровое питание, цветущий сыр, технология производства сыра.

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