

77. CRAFT PRODUCTION OF ALBUMIN PRODUCTS FROM LOCAL DAIRY RAW MATERIALS

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Milk, as a local raw material, is a unique natural liquid containing more than 90 different components that ensure its high biological value. The most important substance in milk is protein, which consists of all essential amino acids in a ratio close to the "ideal protein".

In the human body, proteins perform catalytic, structural, protective, transport, hormonal, regulatory and receptor functions and are characterized by a high rate of digestibility and almost complete (97%) absorption.

Milk proteins are in a dissolved (albumin and globulin) and colloidal (casein) state.

The quantitative composition of proteins in milk from different domestic animals is as follows: sheep – up to 62.16 mg/ml, goat – up to 37.22, cow – up to 36.45, mare – up to 28.28 mg/ml. Thus, the content of whey proteins is, %: in cow and goat milk – 16, sheep milk – 24, casein in cow and goat milk – 84, sheep milk – 76, respectively.

Thus, craft production of albumin concentrates from local dairy raw materials is possible and relevant.

Milk-protein products are made from whey by thermo-acid coagulation, with a mass fraction of solids of 15 %, 20 %, 30 %. In general, whey proteins are extracted from whey by the following methods: thermal denaturation with a change in the reaction of the medium; using complexes; baromembrane methods; and electromagnetic field treatment.

For craft production, thermal denaturation of whey proteins with a change in the reaction of the medium to the optimum is common. In fresh whey, protein particles are in their native state. During denaturation, first of all, their structure is disturbed and their stability decreases.

During denaturation, protein balls turn around, with 10...20 % of the bonds destroyed. This process is accompanied by changes in the configuration, hydration, and aggregate state of the particles. The introduction of acids and alkalis leads to the disruption of salt bonds while shifting the dissociation towards the isoelectric point and neutralizing the surface charges of the protein particle. At the beginning of heating, disaggregation of protein associates occurs as a result of an increase in particle velocity, and whey turbidity increases. At a temperature of 50 ± 3 °C, albumin agglomeration is observed, accompanied by clarification of whey.

Increasing the heat treatment to 77 ± 3 °C leads to the formation of flakes and their subsequent settling. Further heating to 88 ± 3 °C causes a partial (20...25 %) release of denatured proteins. Peptides and non-protein nitrogen remain. At temperatures above 100 °C, the degree of protein release increases slightly.

To enhance thermal denaturation, coagulant reagents (acidic whey, hydrochloric or lactic acids, etc.) are used; coagulant ions for sorption on the surface of the protein globule or the introduction of a hydroxyl group to recharge protein particles and create a new isoelectric point. All these measures contribute to the loss of stability of protein globules in solution with subsequent association and formation of agglomerates.

However, calcium chloride is active only in fresh whey, which makes it difficult to use in practice, and the addition of baking soda leads to the darkening of whey and redistribution of whey protein fractions. For the craft production of milk protein products with small volumes of processing of local raw materials, thermal denaturation combined with acid-base coagulation and concentration by settling or centrifugation is used.

Depending on the raw milk and fillers, albumin products are produced with a mass fraction of fat of 14 %, 6 %, 3 %, and 2.5 % with vegetable ingredients, mint, adjika, fruit, and berry jam or jam, salty, sweet, etc. The craft production facilities have implemented the technology of salted cheese mass with garlic and dill. The product is made from albumin cheese, cream obtained from cow's milk, table salt, sugar, garlic 6.7%, sunflower oil, bay leaf 1%, ground black pepper 1% and a

filler consisting of carrots 21%, dried herbs 18% (green onions, parsley, spinach, dill, celery, basil). The shelf life is 5 days at a temperature of 0...2 °C.

Small-scale enterprises produce Mizithra, a traditional Greek light, low-fat cheese. The albuminous product is made from heated whey obtained from sheep and goat cheese production with the addition of goat or sheep milk.

In addition, craft production technologists have proposed the technology of sweet curd mass with prunes, which is made from albumin cheese, crystalline white sugar, cow's milk cream, prunes, and vanillin. The albumin curd mass is packaged in 350 g plastic containers or 120 g plastic molds with a spoon and is distinguished by its minimalist color design with maximum information content typical of craft. The craft enterprise produces whipped semi-fat albuminous cheese "Veselka" chocolate with cream, sugar, vanilla, and chocolate topping.

The "Chocolate" topping consists of white crystalline sugar, skimmed milk powder, cocoa powder, drinking water, modified corn starch, a flavor identical to natural chocolate, and potassium sorbate. The product has a shelf life of 5 days at a temperature of 2 to 6 °C.

Conclusions. Analyzing the current market for protein products, we can conclude that there has been a noticeable increase in the craft production of albumin products with various fillers, which indicates the relevance of this area for saving local dairy raw materials, as well as expanding the range, improving quality, increasing nutritional and biological value, and extending the shelf life of finished products.

References

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78. УДОСКОНАЛЕННЯ ТЕХНОЛОГІЇ ПЕЛЬМЕНІВ ПІДВИЩЕНОЇ ХАРЧОВОЇ ЦІННОСТІ

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Вступ. Українські економічно-виробничі підходи сьогодні можна назвати унікальними – з одного боку, вони базуються на принципах ринкової економіки, з іншого – тягнуть спадщину централізованого виробництва радянського періоду, коли основні акценти були зроблені на великих виробників.

Це і є одним із тих головних критеріїв, що відрізняють українську економіку від економіки країн зі сталою традицією ринковості.

Основне товарно-виробниче законодавство в Україні прописане під великого виробника, в той час як, наприклад, у європейських країнах робиться акцент на різноманіття виробництва, конкурентній боротьбі між численними дрібними й середніми виробниками та можливості вибору для споживача.

Функції держави зводяться до контролю та запобіганню анти конкурентному середовищу та захисту прав і свобод успішніших, не забуваючи про стимулювання і допомогу тим, хто починає.

Актуальність теми. Протягом останніх років змінюється культура виробництва і споживання локальних, крафтових та нішевих українських продуктів. Більшого значення набувають поняття простежуваності продукту – від поля до виделки, цінність географічного позначення, питання безпечності та якості продукції і питання сертифікації за міжнародними стандартами. Також розвиваються напрямки створення мережі туристичних маршрутів, так званих «slow food» – турів, покликаних підвищити зацікавлення туристів в унікальних за