

Project name: № AP09562617 «Development of the domestic energy, immunomodulation drink «BALKYMYZ»».

Relevance: Kumys and honey are brands of the Republic of Kazakhstan. Developing a single drink from these national brands is highly relevant. Kumis, along with honey considered as one of the ancient, heroic drinks. However, its consumption, especially in cities are hardly massive now. Nevertheless, Kumis also produced in Kyrgyzstan, Kalmykia, Tataria, Yakutia, Bashkiria, Mongolia. Kumis, prepared from mare's milk by lactic and alcoholic fermentation using Bulgarian and acidophilic lactic acid sticks, and yeast. It is not only a valuable additional food product, also known as a therapeutic and prophylactic agent for a number of diseases associated with metabolic disorders in the body, specifically with pulmonary tuberculosis.

Natural bee honey is a unique food product with excellent taste and nutritional qualities. Due to its uniqueness, honey has a wide range of healing properties for human body, with 100% digestibility by it. This high-calorie product is a valuable source of carbohydrates, containing almost all trace elements and vitamins average human need. Therefore, bee honey is the most valuable product that nature gives us. Honey contains more than 300 substances, 30 microelements, small amounts of pollen, royal jelly, so that there is no better remedy in nature that can supply us with the optimal amount of microelements and vitamins necessary to increase the body's resistance to the action of harmful factors and pathogens of various diseases [3, 4]. The domestic immunomodulatory energy drink developed by us will allow you to use a healthy and high-quality drink instead of harmful energy drinks and soft drinks with a lot of sugar, stimulators like caffeine.

In the Republic of Kazakhstan, the topic of a national brand amongst food products is becoming especially relevant. BALKYMYZ is the first drink based on ecologically pure and nutritious domestic branded products. The developed BALKYMYZ technology will allow obtaining a product with a high biological value due to unique properties of mare's milk and honey, expanding the range of fermented milk products, and providing additional opportunities for the economic development of animal husbandry.

Goal: "Develop a domestic energy, immunomodulating drink" BALKYMYZ".

Expected results: Selected high-grade domestic honey "raznotravye", produced in Katon-Karagai, East Kazakhstan region and koumiss with the best organoleptic parameters (milky white, homogeneous, not carbonated, without foreign tastes and odors), physico-chemical (titrated acidity 92.3 ± 1.9611 ° T, active acidity pH 3.7 ± 0.3926 , fat mass fraction $1.9 \pm 0.2814\%$, protein mass fraction $3.08 \pm 0.3582\%$, mass the proportion of carbohydrates is $16.2 \pm 0.8216\%$, the mass fraction of alcohol is $1.2 \pm 0.2236\%$, toxic elements and radionuclides are within the norm) and tasting (9.0 ± 0.1 points) indicators. The optimal concentration for honey was selected - 5% and 100% koumiss with certain organoleptic and physico-chemical parameters. The optimal technology of the method for obtaining the energy immunomodulating drink "Balkymyz" has been developed and an application for a Eurasian patent has been filed. A scientifically-based sanitary assessment of the energy drink "BALKYMYZ" is given: according to organoleptic indicators, it is foamy, milky-white with a creamy tint, homogeneous consistency, slightly carbonated, medium strength, has a sour-milk, slightly tart taste, with the aroma of natural honey; according to the tasting evaluation, it had a maximum score of 9.0 ± 0.1 ("excellent"); according to physico-chemical parameters, it had the best indicators: titrated acidity 92.3 ± 1.9611 ° T, active acidity pH 3.7 ± 0.3926 , mass fraction of fat $1.9 \pm 0.2814\%$, mass fraction of fat protein $3.08 \pm 0.3582\%$, the mass fraction of carbohydrates is $16.2 \pm 0.8216\%$, the mass fraction of alcohol is $1.2 \pm 0.2236\%$, nutritional value is 94.22 kcal; the vitamin composition was characterized by a higher content of vitamin A (68%), vitamin B2 (26%), vitamin B5 (21%), vitamin B6 (57%). Thus, the vitamin composition of the drink is fortified, the nutritional value differed from koumiss in amino acid, fatty acid and carbohydrate composition. Recommendations have been developed on the sanitary assessment and use of the

energy drink "Balkymyz" for health and wellness institutions with the introduction of rehabilitation centers of the Akmola region of the Republic of Kazakhstan: The State Municipal Enterprise on the right of economic management "Regional Rehabilitation Center "Kokshe" and the children's Center "Burabai" under the health department of the Akmola region. As part of the research work, one candidate's (RF) and master's dissertations are carried out.

Scientific publications:

1. Maikanov B.S., Auteleeva L.T., Sataeva Zh.I., Aipova A.B. Recommendations on sanitary assessment and use of the energy drink "BALKYMYZ" for health and wellness institutions// NAO "KATU named after S.Seifullin". – 2021 –Nur-Sultan, p. 14

2. Maikanov B. S., Auteleyeva L. T., Satayeva Zh.I., Aipova A. P. Nutritional value and production technology of the national drink "BALQYMYZ"// Food Science and Technology International – 2021 y. ID FSTI-21-09-04.

3. Maikanov B.S., Auteleeva L.T., Sataeva Zh.I., Aipova A.B. Method of obtaining an energy immunomodulating drink "BALKYMYZ" //Application for a Eurasian patent. Application "KZ2021/049 DATED 22.09.2021

Members of the research group: The project manager is Doctor of Biological Sciences, Professor Maikanov Balgabay Sadepovich. Author ID in Scopus* 56414972800, ResearcherID Web of Science P-1911-2017, ORCHID ID* 0000-0003-0839-5126

Chief Researcher-Acting Associate Professor PhD, Autelyeva Laura Tyulegenovna. Author ID in Scopus* 571895977, ResearcherID Web of Science C4956-2017, ORCHID ID*0000-0003-2999-9973.

Researcher-senior lecturer, M. V. N., Sataeva Zhuldyz Isakovna. Scopus Author ID 57221646203, ORCID ID*0000-0001-8327-3474.

Information for potential users: Health-improving institutions and laboratories for food safety of the Committee and the Committee for Veterinary Control and Supervision of the Ministry of Agriculture of the Republic of Kazakhstan.