

## DEVELOPMENT OF TECHNOLOGY FOR THE PRODUCTION OF KUMISS FROM COW'S MILK WITH GENERAL STRENGTHENING AND MEDICINAL PROPERTIES

**Zunnunova Dinara Ergashevna**

*Senior Lecturer*

*Department of Quality and Safety of Food Products*

*Tashkent Chemical-Technological Institute,*

*Republic of Uzbekistan, Tashkent*

**Akramova Ra'no Ramizitdinovna**

*PhD, Professor, Department of Technology of Food Products and*

*Perfumery and Cosmetic Products,*

*Tashkent Chemical-Technological Institute,*

*Republic of Uzbekistan, Tashkent*

**Abstract:** The article examines the chemical composition of the developed drink from mare's milk. The developed drink has dietary, tonic and medicinal properties.

**Keywords:** kumiss, starter, milk, medicinal, vitamins, digestion, homogenization, infusion.

Mare's milk is a widely known medicinal and highly nutritious drink obtained as a result of lactic and alcoholic fermentation of mare's milk. The taste of mare's milk is a pleasant, refreshing, sour-sweet foamy drink. It cools, quenches hunger and thirst at the same time and gives a special vigor to a person.

The first mention of mare's milk can be found in the works of the ancient Greek historian Herodotus, who, describing the life of the Scythians, said that the favorite drink of this people was a special drink prepared by churning mare's milk in deep wooden tubs.

The earliest traces of mare's milk consumption found correspond to the Eneolithic era (5,500 years ago). At the sites of the Botai culture (Northern Kazakhstan), among other evidence of domestication of horses, also the earliest in the world, the remains of clay jugs with traces of mare's milk, possibly fermented like mare's milk, were found.

The healing properties of mare's milk in folk medicine have long been known. The Central Asian philosopher, physician Abu Ali ibn Sina (Avicenna) in his works

"The Canon of Medicine" more than 1000 years ago noted that he cured a vizier suffering from urolithiasis with mare's milk.

The chemical composition of mare's milk, prepared from mare's milk, is called natural. It has the properties of a highly nutritious and medicinal product, because it is rich in easily digestible proteins, fats, carbohydrates, vitamins and biologically active substances. During the fermentation process, the chemical composition of mare's milk changes.

In mare's milk, the sugar content is sharply reduced, lactic acid, carbon dioxide, alcohol, aromatic and other substances accumulate. The total amount of dry matter in the milk of mares of different breeds ranges from 10 to 11.4% in mare's milk is reduced - from 1.4 to 4.4%.

The caloric content of 1 liter of mare's milk ranges from 300 to 400 kcal. mare's milk is rich in calcium, the content of which in 1 liter is from 70 to 150 mg. During alcoholic fermentation, yeast cells accumulate in significant quantities in mare's milk, which makes it especially valuable.

It is known that yeast has long been used in medicine for furunculosis, exhaustion, purulent and long-term non-healing wounds, as well as for metabolic disorders caused by insufficient amounts of proteins and B vitamins in food. Thus, everything that is known about the beneficial effects of yeast on the human body can also be attributed to mare's milk.

The nutritional and medicinal properties of mare's milk are due not only to its remarkable composition, but also to the content of fermentation products (lactic acid, alcohol, carbon dioxide). Lactic acid stimulates appetite and improves digestion. Vitamins C (ascorbic acid), B1 (thiamine), B2 (riboflavin), A, PP, E, etc. have a beneficial effect on the body's metabolism [108].

Over the past decade, the technology for producing natural mare's milk has been improved. Kazakhstan specialists have developed an improved technology for mare's milk with an enriched component composition. "Biokumys" contains soy milk in addition to mare's milk, and the mare's milk starter also includes bifidobacterial, which enhance the medicinal properties of the product.

The new method for obtaining mare's milk "Boz-kan" differs from the traditional one by adding pure cultures of *Lactobacillus acidophilus*, *Str.lactis*, *Torulopsis sphaerica* to milk at a temperature of 30°C and stirring for 5 hours.

Then the mare's milk is kept at +4-6°C. The shelf life at 0+2°C is extended to 4 months. The first person to substantiate the organizational and scientific basis of mare's milk treatment was the doctor N.V. Postnikov. In 1859, he, surprised by the recovery of a patient from tuberculosis, whom he sent to the Bashkirs to drink mare's milk, together with the doctor A.I. Chembulatov opened a mare's milk treatment facility near Samara for the treatment of patients with tuberculosis and other debilitating diseases.

After that, in a few years, mare's milk acquired great fame not only throughout Russia, but also in other neighboring countries, as the most effective remedy against tuberculosis. Doctors and scientists of the second half of the 18th and 19th centuries felt the great healing power of mare's milk as a universal remedy. From insightful and intuitive experiments and observations on the high healing qualities of the ancient drink, experimental, clinical and theoretical confirmations were received in the works of scientists of the 20th century: N.A. Kramov, P.Yu. Berlin, M.N. Karnaukhov, A.S. Vishevsky, A.V. Sirgist, Z.Sh. Zagidullina, M.G. Kuramshina and others. Not every country, including Uzbekistan, has developed horse breeding and there is no industrial production of natural mare's milk. Due to the lack of mare's milk in these countries, kumiss is produced from cow's milk, and in some recipes, whey is added. In the literature available to us, we were able to find only a few methods for producing kumiss from cow's milk.

There is a method for preparing kumiss from whey with the addition of natural or skim milk, as well as buttermilk, followed by mixed fermentation. Kumiss can be prepared from whey and by enriching it with sugar, molasses, rye flour, followed by fermentation.

A method for producing kumiss from cow's milk enriched with whey protein concentrate is known. Kumiss starter is prepared on mare's milk and is added in an amount of 10%. Fedorov P.A. and Tolmacheva E.A. proposed a method for

preparing kumiss from cow's skim milk or buttermilk. The fermentation process is carried out in two stages - first, lactic acid fermentation is carried out, then yeast and sugar are added for alcoholic fermentation [132]. The mixture for mare's milk and the method for its production is intended for the preparation of a fermented milk drink from mare's milk, in order to bring the composition of the mixture closer to mare's milk, a concentrate of natural casein in the amount of 9% is used as a casein-containing component, 5% cream and condensed curd whey are used as a fat-containing component.

In the sixties of the last century in Russia, kumiss from cow's skim milk was prepared with the addition of sugar and fermentation with a starter consisting of Bulgarian and acidophilus bacilli and yeast that ferment lactose.

Thus, in the production of mare's milk from cow's milk, the methods used, raw materials and the composition of starter cultures differ significantly from each other.

### Reference.

1. Makarova N.V., Zimichev A.V., Zyuzina A.V., Lugova T.V. New trends in the production of juice-containing drinks. // News of higher education institutions. Food technology. -2008. -№ 5-6. -P. 5-8.
2. Zipaev D.V., Zimichev A.V. Milk whey is a valuable raw material for secondary processing. // News of higher education institutions. Food technology. - 2007. №2. -P. 14-16.
3. Merkulova E.P., Kozhukhova M.A. Lacto-fermented drinks based on milk whey. // News of higher education institutions. Food technology. -2009. -№4. -P. 40-41.
4. Evdokimov I.A. Current status and prospects for processing milk whey. // Dairy industry. - 2006. - №2. – P. 34-36.
5. Vaskina V.A., Kuznetsova L.V., Novozhilova E.S. Vegetable and whey puree. // Food industry. - 1996. - №5. – P. 32.
6. Cherevach E.I., Tenkovskaya L.A., Fishchenko E.S. Development of technology for a multicomponent soft drink for special purposes based on milk whey. // News of universities Food technology. - 2011. - №1. - P.45-48
7. Bioavailability and Antioxidant Effects of a Xanthone – Rich Mangosteen (Carcinia mangostana ) Product in Humans. M. Kondo, L. Zhany, H. Ji et al. // Jour. Of agricultural and food chemistry. -2009. -№ 57. –P. 37-40.

8. Chemical composition, technology of obtaining and use of mare's milk.  
<http://www.allvet.ru/referats>.

9. Melnikova E.I., Niftaliev S.I., Shirunov M.O., Griбанова Yu.S. New natural sweetener-biocorrector of food rations // News of universities. Food technology. -2010. -№1. –P. 52-53.

10. Skobelskaya Z.G., Bulchuk E.A. Hydrolyzed whey enriched with lactates. // Raw materials and additives. Food industry. -2005. -№6. –P. 74-75.

11. Ahmatovich R. A. et al. In biocenosis the degree of appearing entomophagous types of vermins which suck tomatoey sowings //Austrian Journal of Technical and Natural Sciences. – 2018. – №. 9-10. – С. 3-5.

12. Сулаймонов Б. А. и др. Фитофаги и виды энтомофагов, встречающиеся в лесном биоценозе //Актуальные проблемы современной науки. – 2021. – №. 1. – С. 64-69.

13. Кимсанбаев Х. Х., Жумаев Р. А. К вопросу размножения *Trichogramma evanescens* для биологической защиты растений //Международна научна школа" Парадигма". Лято-2015. – 2015. – С. 34-41.

14. Жумаев Р. А. Биолaborаторияда трихограммани in vitro усулида ўстириш технологияси. Трихограммани сунъий озикада ўстириш курси (1)(Hymenoptera: Trichogrammatidae). – 2016.

15. Sulaymonov B. A. et al. Effectiveness of Application of Parasitic Entomophages against Plant Bits in Vegetable Agrobiotensinosis //Solid State Technology. – 2020. – Т. 63. – №. 4. – С. 355-363.

16. Kimsanbaev X. X., Jumaev R. A., Abduvosiqova L. A. Determination Of Effective Parasite-Entomofag Species In The Management Of The Number Of Family Representatives In Pieridae //The American Journal of Agriculture and Biomedical Engineering. – 2021. – Т. 3. – №. 06. – С. 135-143.

17. Jumaev R. Invitro rearing of parasitoids //E3S Web of Conferences. – EDP Sciences, 2023. – Т. 371.

18. Кимсанбаев Х. Х. и др. Биоценозда ўсимлик зараркундалари паразит энтомофаглари ривожланиши. «//O'zbekiston» НМИУ, –Тошкент. – 2016.

19. Сулаймонов Б. А. и др. Ўрмон биоценозида фитофаг турлари ва улар миқдорини бошқариш //O'zbekiston» НМИУ, –Тошкент. – 2018.

20. Jumaev R., Rakhimova A. Analysis of scientific research on reproduction of species of Trichograms in Biolaboratory //The American Journal of Agriculture and Biomedical Engineering. – 2020. – Т. 2. – №. 08. – С. 148-152.

21. Axmatovich J. R. In vitro rearing of trichogramma (Hymenoptera: Trichogrammatidae) //European science review. – 2016. – №. 9-10. – С. 11-13.

22. Jumaev R. A. et al. The technology of rearing Braconidae in vitro in biolaboratory // European Science Review. – 2017. – №. 3-4. – С. 3-5.

23. Жумаев Р. А. Массовое размножение трихограммы на яйцах хлопковой совки в условиях биологической лаборатории и ее применение в агробиоценозах // Халқаро илмий-амалий конференция “Ўзбекистон мева-сабзавот маҳсулотларининг устунлиги” мақолалар тўплами. Тошкент. – 2016. – С. 193-196.

24. Жумаев Р. А. Значение представителей семейства BRACONIDAE в регулировании численности совок в агробиоценозах // ЎЗМУ Хабарлари. – 2017. – Т. 3. – №. 1.

25. Жумаев Р. А. РАЗМНОЖЕНИЯ ИН ВИТРО BACON HABETOR SAY И BRACON GREENI ASHMEAD // Актуальные проблемы современной науки. – 2017. – №. 3. – С. 215-218.

26. Axmatovich J. R. In Vitro Rearing of Parasitoids (Hymenoptera: Trichogrammatidae and Braconidae) // Texas Journal of Agriculture and Biological Sciences. – 2022. – Т. 4. – С. 33-37.

27. Suleymanov B. A., Jumaev R. A., Abduvosiqova L. A. Lepidoptera Found In Cabbage Agrobiocenosis The Dominant Types Of Representatives Of The Category Are Bioecology // The American Journal of Agriculture and Biomedical Engineering. – 2021. – Т. 3. – №. 06. – С. 125-134.