the warm period to nitrates (R = 0,99, R_2 = 0,99), the cold period to Hg (R = 0,83, R_2 = 0,69).

The indicator of homeostasis (AP) was predictive of the sensitivity of the warm period to xylene (R = 0,92, R2 = 0,84), and sympathetic heart rate circuit responsive to the content of toluene (R = 0,61, R_2 = 0,37) more than in the cold season.

Aging Temp more responsive to 6 elements be it to cadmium (R = 0,97, R_2 = 0,94), zinc (R = 0,79, R2 = 0,64), cobalt (R = 0,97, R2 = 0,94) selenium (R = 0,97, R_2 = 0,94) and xylene (R = 0,77, R2 = 0,59).

In relation to the sensitivity of women to the content of harmful substances in the soil we have revealed the dependence of regression models to the 3 indicators to the index of this activity of regulatory systems (PARS), a combined indicator of homeostasis (AP) and the rate of aging (TC).

This was five substances, among them carcinogenic substances actions lead (R = 0,77, R_2 = 0,59), nickel (R = 0,96, R_2 = 0,92); nekantserogeny substance: zinc (R = 0,75, R_2 = 0,56), Hg (R = 0,86, R_2 = 0,74). It should be noted that the dependence of these substances have both warm and cold periods in the year.

Depending on the water regression were detected only in the indicators and PARS ID, as shown in Table was the third material, including nitrates (R = 0,98, R_2 = 0,96), selenium (R = 0,64, R_2 = 0,41) and Ti (R = 0,69, R_2 = 0,48).

On the content of substances in the air sensitive were all integral factors in both men and women, which confirm the priority of this factor in the adverse effect of exposure.

In the warm season it was dust (R = 0,66, R_2 = 0,43) and phenol (R = 0,76, R_2 = 0,57), which responds PARS component and an integral component homeostasis (AP) , but it responds to the content of other substances, such as cobalt (R = 0,58, R_2 = 0,34).

Both men and women were equally sensitive to the content of SO_2 in the cold season, which dependence manifested in 76% of the sample (R_2 = 0,57).

As part of air pollutants, namely cobalt showed sensitivity index «rate of aging» in women, and this was expressed in the warm season.

Thus, depending on the functional state of the identified adult contingent living in urban areas of Kazakhstan with the levels and concentrations of pollutants in ambient factors indicative of their adverse effects this is greatly reduced by their adaptive capacity. The low level of plasticity of the body, namely the intensity of the central circuits in conjunction with the adverse effects of heavy metals on the generative system of the body greatly accelerates the rate of aging, especially in the female population.

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ISOLATION AND STUDY OF LACTIC ACID BACTERIA CULTURES, YEAST OF NATURAL COOKING KUMIS STARTER FOR THE GOAT'S MILK

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This article describes the microflora kumys made from fermented mare's milk and goat's milk. Isolated strains of lactic acid bacteria aerobic 3 – 1Sh; 2Sh; 3Sh; 4 anaerobic – 4Sh; 5Sh; 6Sh; 7Sh; 2-yeast culture-1Shd, 2Shd. In these cultures studied morphological, physiological, cultural and antagonistic properties on Bacillus mezentericus is defined acid-forming activity in the mare's milk Made a starter for kumys cultures of lactic acid bacteria and yeast in the ratio of 1:1:1 (bacillus, cocci, yeasts). Selected cultures to increase the collection of microorganisms and their use as starter cultures.

People use the milk for about 6 thousand years and lactic drinks in person`s life are particularly important. Since ancient times people widely use goat`s, cow`s, mare`s, camel`s milk. There are process of mixed fermentation in the most of lactic products – in lactic and alcohol.

Nomadic people (Kazakh, Kyrgyz, Mongols, Bashkirs, Tatars) since ancient times prepared kumis from mare`s milk.

In some nations kumis called differently: for example, the Arab people called the kumis as «allaban-arramaki», and the Turkish people called it as «kumis».

Kumis – it is the dairy drink, which has leaven in mare`s milk, makes from lactic acid bacteries and yeast. The method of preparing kumis were well-known for ancient Scythian. In V th century to our era Herodotus wrote «the Scythian make the kumis from mare`s milk». The Scythians fermented mare's milk in wooden vessels. According to Herodotus – the recipe of the drink Scythians kept secret. The first written mention of the preparation kumis,

its taste and effects on the body appeared in 1253 after a trip to the land of William Rubrikosa Tatars. According to some historians kumis appeared in Asia, in particular in the steppe part. It is believed that the first mare began to ferment in Mongolia. We also want to notice the importance of kumis as a remedy, used since ancient times to treat colds Kazakhs drank mare's milk, cook in it kazi (horse meat sausage. For children and elderly kumis prepared with raisins.

The preparation technology kumis is relevant because currently used industrial and home methods (the use of pure cultures, that is, stable way to ferment and home use of wild yeast). This technology has a number of disadvantages and advantages. They are: acidity organoleptic characteristics, consistency and antagonist activity. These crops are the necessary facilities as starter cultures for kumis.

The aim of the present work was to prepare kumis from goat's milk, study and the selection of strains of mesophilic aerobic and anaerobic lactic acid and yeasts grown at $t = 37°C$, Determination of antagonistic properties of selected cultures of lactic acid bacteria and yeast.

The study involved two samples of different types of milk: goat`s and mare`s milk after morning milking, cooked in the village Ganyushkino Kurmangazy district of Atyrau region. In these samples determined organoleptic properties of milk (taste, smell and texture, acidity, according to Turner), in accordance with state standards.

To achieve the goal, this study identified several problems :

1. Samples of fermenting mare's milk for cooking kumis (at home).
2. The resulting kumis used for further fermentation of goat milk.
3. Distinguish from the natural yeast, lactic acid bacteria and yeast dilution method.
4. To explore and identify morphological, physiological properties in these aerobic and anaerobic lactic acid bacteria and yeast.
5. Use the method of cultivation and sowing in the liquid medium to obtain pure cultures.
6. Determination of the activity of acid and determination by Turner.
7. Cooked mare from goat's milk and its use as a natural leaven for making kumis on mare's milk.
8. Determination of the antagonistic properties of selected lactic acid bacteria and yeast using holes with respect to the strain Bacillus mezentericus
9. Formulating the compositions using cultures of lactic acid bacteria and yeast.

The composite products, presented from a natural leaven kumis prepared from goat's milk (kumis 50 ml + goat`s milk 50 ml) placrd in the thermostat for 24 hours at 37°C Received one-day dairy products mixed acidity Turner 32°T, organoleptic properties of the consistency and smell – it's a loose clot, with the smell of mare`s milk. Cultures of lactic acid bacteria are allocated to the dense medium Bogdanov at $t = 37°C$. A yeast stood on solid medium (Sabur). On the growth of lactic acid bacteria and yeast was judged by the appearance of colonies grown on nutrient medium. Of yeast on the goat milk were identified 9 cultures of lactic acid bacteria, including 3 types – aerobic strains, 4 – anaerobic strains, 2 types – yeast strains. All strains were grown in liquid medium: cultures of lactic acid bacteria, sowed in the hydraulically milk, plated on hydrolysed milk, 2 culture of yeast on the peptone – to the yeast environment with glucose. 2 – Culture of yeast peptone – yeast medium with glucose.

All cultures were determined by catalysis, all catalyses negative, not able to form catalyses. All the strains studied the morphology of the Gram method. The morphological features were identified as culture. It named as: 3 culture: cocci (1Sh, 3Sh, 6Sh), 4 culture bacillus (2Sh, 4Sh, 5Sh, 7 Sh), including Gram strain 5 (1Sh, 2Sh, 4Sh, 5Sh, 7Sh) – gram-positive (D +), Culture 2 – (3Sh; 6Sh) – Gram-negative (G-). Morphological characteristics were examined in yeast, they are oval in shape.

In these selected 9 – antagonistic activity of cultures was determined by the holes in the medium IPA in relation to the test culture of Bacillus mezentericus. As a result, the ability of antagonistic found in isolated cultures, inhibit the growth of Bacillus mezentericus.

The results are shown in Table 1.

Table 1

The antagonistic activity of lactic acid bacteria grown on milk hydrolyzate with respect to Bacillus mesentericus

Aerobic strains of lactic acid bacteria	Growth areas (mm)
Control	0 mm
1Sh (cocci)	11 ± 0,3
2Sh (bacillus)	7 ± 02
3Sh (cocci)	7 ± 02
Anaerobic strains of lactic acid bacteria	Growth areas (mm)
The control	0 mm
4Sh	15 ± 0,6
5Sh	11 ± 0,4
6Sh	7 ± 0,2
7Sh	11 ± 0,3

From the Table 1, in aerobic cultures maximum visible area 1Sh (2 mm), minimum area 1,5–1 mm (2m; 3Sh). In anaerobic cultures maximum zone of 2–3 mm (4Sh; 6Sh), minimum zone 1–1,5 mm (5Sh; 7Sh).

From Table 2, the maximum visible area (1,5 mm 1Shd), the minimum area of 1 mm (2Shd). We selected nine aerobic and anaerobic lactic acid bacteria cultures, yeasts studied acidity plated on mare's milk at different times. The main property

of lactic acid bacteria and yeast are the ability to accumulate lactic acid. This feature is very important from a practical point of view for kumis. Studied the dynamics of acid on the clock in the first days of growth. Data are presented in Table 3

Table 2

The antagonistic activity in isolated yeast grown peptone-yeast on glucose medium with respect to Bacillus mezentericus

Yeast	Growth areas (mm)
Control	0 mm
1Shd	6 ± 0,3
2Shd	5 ± 0,2

Table 3 shows that within 3 hours strains produce high acidity, of them – 1Sh, 2m, (°T 10–12); low acidity form – 3Sh (9°T). During 24 hours given cultures distinguished on the acidity: 1Sh, 2Sh (49–48°T) have the highest acidity, the medium acidity – 3Sh (40°T). Within 24 hours, the cultures are different in acidity, have a higher acidity – 1Sh, 2m, (49–48°T), medium acidity – 3Sh (40°T). With the active acidity of the sample used fresh mare's milk for 4-anaerobic cultures. The table shows, for 3 hours strains – 4Sh; 5Sh form a low acidity (10–12°T). The average acidity 6Sh, 7Sh, (13–13°T). Within 24 hours, strain showed high acidity – 6Sh; 7Sh, (55–57°T). The average acidity – 4SH; 5SH (40–45°T To determine the acidity of all crops grown on the mare's milk.

Table 3

The dynamics of acid in isolated cultures of lactic acid bacteria during 24 hours (night) and 3 (hours)

Aerobic strains	3 hours	Acidity, °T	24 hours	Acidity, °T
Control	-	-	-	-
1Sh (cocci)	+ +	10 ± 1,4	+ + +	49 ± 3,7
2Sh (cocci)	+ +	12 ± 2,8	+ + +	48 ± 3,6
3Sh (cocci)	+	9 ± 1,0	+ +	40 ± 3,5
Anaerobic strains	3 hours	acidity, °T	24 hours	acidity, °T
Control	–	–	–	–
4Sh (cocci)	+	10 ± 1,4	+ +	40 ± 3,5
5Sh (bacillus)	+	12 ± 2,8	+ +	45 ± 3,5
6Sh (bacillus)	+ +	13 ± 3,0	+ + +	55 ± 3,8
7Sh (bacillus)	+ +	13 ± 3,0	+ + +	57 ± 4,0

Table 4

The dynamics of acid selected yeast

Yeast	3 hours	Acidity, °T	24 hours	AScidity, °T
Control	-	-	-	-
1Shd	+	10 ± 1,1	+ +	34 ± 3,0
2Shd	+	9 ± 1,0	+ +	36 ± 3,1

Table 4 shows that within 3 hours of the yeast form a low acidity – 1Shd; 2Shd (10–9°T). Within 24 hours the cultures differ in acidity. 1Shd; 2Shd – have an average acidity (34–36°T). To determine the acidity of all yeasts grown on mare's milk. Thus, accumulation of the active acidity observed in culture – 1Shd lactic acid bacteria

After determining the antagonistic properties, acidity, according to Turner, we were compositions of ferments, taking 2 ml of the liquid medium from each culture and 8 ml of mare's milk. Composition ferments in the following ratio – (1:1:1) – 5Sh (anaerobic culture) – bacillus, 1Sh (aerobic culture) – the cocci, 1Shd – yeast in the milk of mares. For growing cultures of lactic acid bacteria and yeast in the mare's milk for 24 hours using a thermostat at $t = 37$°C.

Received the daily lactic products of the mixed type we studied and determined the acidity by terner, the organoleptic properties. The acidity of the mixture composed – 20°T. After the determination of acidity, all the crops on the test-tube 10 ml were mixed and all cultures in test tubes with 10 ml were mixed and were a mixture of 30 ml. This mixture is added to 70 ml of mare's milk and put in an oven for overnight at $t = 37$°C. A night again identified by their acidity Turner organoleptic properties. Cooked milk product had on the bottom of the dish is not dense precipitate on the surface of the formation of gas bubbles. According to Turner, the acidity was 47°T. The resulting blend – 100 ml once again stirred with 200 ml of fermented mare's milk. The total weight of 300 ml placed in a thermostat at the second day at $t = 37$°C. After the second day again determined by their acidity Turner organoleptic properties. Acidity as Turner – 110°T. This mixture was used as starter cultures in the ratio (1:2), that is,

made of fermented sourdough and milk. To increase the quantity of ferment you can use the goat's milk. To increase the weight of the starter, you can use goat's milk.

Conclusion

1. It has been sampled fermented mare's milk and goat's Atyrau region, studied organoleptic characteristics and acidity by Turner.

2. Of natural leaven allocated 9 – active cultures were isolated 4 – anaerobic, 3 – aerobic cultures of lactic acid bacteria, yeast culture 2.

3. To isolate and study the cultures of lactic acid bacteria and yeast culture media were used Bogdanov, Sabur, hydrolysed milk, yeast peptone-glucose medium.

4. In these selected 9 – cultures are defined and studied morphological, cultural antagonistic traits.

6. Identified strong acidifiers active lactic acid bacteria – 1Sh; 2Sh; 6Sh; 7Sh, and one yeast culture-1Shd.

7. Constituents of the compositions for the preparation of kumis in the ratio of 1:2 (sourdough and milk)

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