



MORPHOLOGICAL AND IMMUNOLOGICAL CHANGES IN BLOOD PARAMETERS OF SHORT-COARSE-WOOL RUSSIAN GOATS BREEDS IN CONDITIONS OF THE FOOTHILL ZONE OF SAMARKAND PROVINCE MORPHOLOGICAL AND IMMUNOLOGICAL CHANGES IN BLOOD PARAMETERS OF SHORT-COARSE- WOOL RUSSIAN GOATS BREEDS IN THE CONDITIONS OF NEW HABITAT.

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Abstract: *The obtained data on studying change of morphological and immunological indicators of blood demonstrate that physiologic and biochemical indicators of blood and factors of nonspecific reactivity of an organism were at short-coarse-wool goats during observation more high level, than local contemporaries. At the same time, at local goats total quantity of leukocytes, the number of phagocytes and an index came to light higher, than short-coarse-wool contemporaries* **Keywords;** *goats, milk, blood, uniform elements, immunological indicators, adaptation, a metabolism, productivity, resistance, physics and chemical properties, clinical conditions of goats, etc*

Introduction

The deficiency in a diet of microelements, vitamins, irreplaceable half saturated and amino acids, brings to the disturbance of energy and substances exchange and to decrease in immunobiological reactivity of a live organism. [Bolshakov, 1999] Goat milk is easily available source, above the listed diet components for a human body. Besides, in comparison with milk of others ruminant, goat milk is easily acquired by a human body as in it concentration irreplaceable fat and amino acids, vitamins A, B, and PP, mineral substances, calcium, phosphorus and manganese [Iolchiev 2000; Protasova, 2011]. The possibility of the use in the region to a foothill zone of Samarkand region of highly productive of short-coarse-wool goats the Russian breed, served as motivation of performance of researches for the purpose of definition by provided data. Now it is known that, the immune system is the most sensitive indicator system which is sharply reacts to change of factors of the environment (natural and anthropogenous). Thus, indicators of nonspecific natural resistance and specific immune system [Khaitov, 1995] can be a point of application of external influences. In this regard at an akklimitization of highly productive animals the great value gets



studying of a condition of factors of natural resistance and the physiologist and biochemical blood indicators from mature specimen at a succulence and a lactation:

Indicators of blood are integral expression of activity of bodies and functional systems of an organism, as blood actively participates in maintenance of a homeostasis performing diverse functions (including regulatory and protective) For the last years, is being brought different types of goats on purpose of milk to Uzbekistan, for providing local population with dietary milk and dairy products, and the Russian white short-coarse - wool goat belongs to the category of high-milk breeds of goats. On this basis, we consider that, it is urgent as in the practical so the theoretical plan already, to study of milk productivity, chemical composition of milk and nonspecific reactivity of an organism of short-coarse-wool goats, in new climate-ecological conditions of dwelling The purpose of this work is to study the condition of factors of natural resistance and morphological indicators of blood at goats of different physiological state for scientific-justified conclusion of a possibility of acclimatization and employing of high-milk short-coarse-wool goats in conditions to a foothill zone of the Samarkand province.

It was necessary to execute the following tasks for achievement of goals: a) To study some cellular and humoral factors of natural resistance and morphological indicators of blood at matured succulence and lactating goats of different genotypes; b) To study some economic aspects of expediency cultivation of the Russian of short-coarse-wool goats,

Material and methods

Researches are conducted on a female goats at the age of 4,0-4,5, of different genotypes during two physiological experiences of the executed in 2015-2016 at the farm "Ergash aka" of Pastdargom district The analyses of the received of blood and milk samples are performed in vitro. Analogs of control and experienced groups by 10 goats in every group were created, during carrying out experience two groups of animals on a method of couples [Viktorov, 1991, Ovsyannikov, 1976] Control groups created their local coarse-haired goats breeds are jaydari, and experienced groups of a mother goats are the Russian of short-coarse-wool goats. Experimental goats from November to March were in a condition of a succulence, and from April to January gave milk Changes in cellular and humoral natural resistance and morphological indicators of blood, in connection with a physiological state at goats of different genotypes are studied.

Winter months of a year when goats were in conditions of a succulence, they were supported in the room with the walking platform and in the same place carried out feedings. In the afternoon goats were fed by rough forages, straw fed, camel-thorn and in the evening in addition fed up compound feed by 0,2 kg on the head.

By calculation the goat received 0,75 fodder units and 90 grams of a fodder protein. It was by the detailed standards of feeding of the succulence and lactating goats [Kalashnikov et al., 2003]. States of health of goats systematically controlled by



their general state, the body temperature, pulse rates and breath. The body weight of experimental goats defined by weighing with an accuracy $\pm 0,050$ kg

Blood samples at goats were taken from jugular veins, in 4 hours after their morning feeding [Kondrakhin et al., 1985] Total quantity of erythrocytes and leukocytes was defined in Goryaev's camera, concentration of hemoglobin in a Sahli hemoglobinometer, and an alkaline reserve of blood a titrimetric method [Georgievsky, 1991]. The leukocytic formula was calculated on the basis of differential calculation of leukocytes (as a percentage and in 109/)) in a smear a shelter). [Hisamutdinov, 1995]. Phagocytal activity of neutrophils of blood

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Phagocytal number and index defined on the basis of visual calculation of the bacteria of colibacillus (*Escherichia coli* 0-20) absorbed by neutrophils [Kondrakhin et al, 1985] Lysozyme activity of blood serum was determined after the relation to the lyseing *Micrococcus Lysodeictus micrococcus* [Kondrakhin et al., 1985] and bacterial activity - in relation to colibacillus by Mishel and Treffers [1956] in modification of Yu.M.Markov's et al, 1974[Petrov et al, 1997].

Data analysis

The results were statistically processed by a special software package Origin 6.1. (EULA, USA) The results of experiments processed mathematically-statistically using standard biometric methods [Lakin, 1990]

Result and discussion

During all succulence and lactic period at goats of the studied genotypes the body temperature, a respiration rate and pulse fluctuated within physiological norms. However, it should be noted that with improvement a food condition (in the summer and in the fall) at goats the tendency to increase in these indicators is established (Tabl. 1).

Table 1

Changes of some clinical data of female goats connected with their physiological conditions and genotypes

№	Data	Goats condition	Groups	
			Controlled	Experienced
1	Body temperature,	succulence	36,4 \pm 0,76	36,6 \pm 0,58
		Lactated	35,2 \pm 0,90	33,94 \pm 0,46
2	Breathing rate a min.	succulence	17,6 \pm 0,57	18,5 \pm 0,62
		Lactated	16,4 \pm 0,65	17,0 \pm 0,56
3	Pulse rate a min.	succulence	77,0 \pm 0,96	74,0 \pm 1,73
		Lactated	72,0 \pm 0,74	75,01 \pm 0,96

Short-coarse-wool goats in the research period (a succulence and a lactation) by quantity of erythrocytes, leukocytes, concentration of hemoglobin and indicators of an alkaline reserve of blood authentically surpassed local coarse-haired goats of breed of



jaydari. In our opinion, owing to more intensive exchange of energy and substances increases the need of an organism for oxygen in high- milk short-coarse-wool goats.

The lactation period, at both groups raise quantity of erythrocytes, concentration of hemoglobin and indicators of an alkaline reserve of blood it is probably connected from activation of exchange of energy at the beginning of a lactation. At the beginning of the final period of a lactation at goats decreased quantity of erythrocytes and an alkaline reserve of blood (Tabl 2).

Table 2

Changes in formed blood elements quantity at goats with their physiological condition and genotypes

№	Data	Goats condition	Groups	
			Controlled	Experienced
1	Erythrocytes, mm ³	succulence	14.37±0.09	15.75±0.08
		Lactated	15.91±0.08	17.34±0.09
2	Leukocytes, /mm ³	succulence	8.89±0.64	9.83±0.08
		Lactated	9.19±0.88	10.01±0.94
3	Hemoglobin, g/l	succulence	85.49±0.64	108.64±0.88
		Lactated	91.65±0.71	110.64±1.06
4	Alkarine reserve of d, g/l	succulence	4.44±0.64	5.19±0.08
		Lactated	3.71±0.08	4.68±0.09

In our opinion it is connected with accumulation of products oxidation-reduction reactions in processes of a metabolism in an organism. Short-coarse-wool goats during observation authentically surpassed local contemporaries in phagocytal activity of neutrophils of blood, lysozyme and bactericidal activity of blood serum. We believe that short-coarse-wool goats had an activation of genetic potential of adaptation opportunities of an organism.

At the same time, local goats in most cases authentically surpassed short-coarse-wool goats in indicators of phagocytal number and an index.

Phagocytal activity of neutrophils and concentration of gammaglobulins of goats of the studied came to light in the period of a lactation at higher level, and indicators of phagocytal number and an index on lower Spring the period of year goat can eat on a pasture with young herbs a part of their root system with soil particles, and also the remains of forages of last year. Thereof various antigens (mushrooms, bacteria and parasites) probably got into an organism of goats Perhaps, in response to their invasion at goats became more active, cellular factors, natural resistance of an organism and the quantity of circulating gamma-globulins is increased (antibody). When, goats were in a condition of a succulence, at them in most cases phagocytal activity of neutrophils, lysozyme and bactericidal activity of blood serum and concentration scale - globulins authentically increased, and indicators of phagocytal number and an index decreased. And in the period of a lactation in comparison by a succulence of goats, in most cases indicators of phagocytal number and an index,



lysozyme and bactericidal activity of blood serum authentically decreased. At the same time the tendency to increase in phagocytal activity of neutrophils is revealed, and also reliable increase of gamma-globulins' concentration is established (Tabl. 3).

Table 3

Changes with physiological condition and genotypes of goats some cellular and humoral factors of natural resistance data

№	Data	Goats condition	Groups	
			Controlled	Experienced
1	Phagocytal activity of neutrophils, %	succulence	25.01±1.51	31.8±1.05
		Lactated	34.04±1.61	42.7±1.78
2	A number of leukocytes	succulence	4.09±0.19	2.46±0.32
		Lactated	3.03±1.16	1.92±0.12
3	Index of phagocytes	succulence	8.089±0.36	5.22±0.31
		Lactated	6.20±0.14	4.90±0.20
4	Lysozyme activity of blood serum, %	succulence	3.08±0.34	38.8±1.05
		Lactated	34.8±1.65	48.98±1.30
5	bactericidal activity of blood serum,%	succulence	35.08±0.11	46.64±0.90
		Lactated	50.04±0.40	64.88±1.17
6	gamma-globulins, g/l	succulence	7.24±0.34	9.60±0.24
		Lactated	10.83±0.42	13.54±0.28

Perhaps, the increase in these indicators during the period at goats is also connected with compensation decrease in an indicator of phagocytal number and an index, lysozyme and The condition of indicators of blood and factors of natural resistance at goats irrespective of bactericidal activity of blood serum. The condition of indicators of blood and factors of natural resistance at goats irrespective of physiological a state, depends on influence of a genotype, factors of internal and external environment. At the same time the share and an orientation of influence of these factors is exposed to fluctuations [Plokhinsky, 1969, Merkuryeva et al., 1983].The Succulence and lactation exerted the blood defined impact on a condition of indicators and factors of nonspecific reactivity of an organism of goats. Thus, the obtained data demonstrate that physiologic and biochemical indicators of blood and factors of nonspecific reactivity of an organism were at short-course-wool goats more high level during observation, than local contemporaries. At the same time, at local goats total quantity of leukocytes, phagocytal number and an index came to light higher, than short-course-wool contemporaries.

Conclusion

Despite of physiological a state and a genotype of goats, the physiologic and biochemical indicators of blood and factors of natural resistance at experimental animals changed identically.



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