



## CHARACTERISTICS OF THE CONSTITUTION OF ANTI-INFECTION RESISTANCE OF KORAKUL SHEEP

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### Annotation

The natural immunobiological features of Karakul sheep of different constitutions against conditional pathogenic microorganisms were studied. In the course of the research, it was found that there is no difference in the humoral parameters of the natural immune status of the organism of Karakul sheep against conditional pathogenic microorganisms, but in terms of the number of immunoglobulins M and G, especially leukocytes in the blood, Karakul sheep of a fine constitution differed significantly from Karakul sheep of a strong and rough constitutions.

**Keywords:** constitution, immune status, immunobiological reactivity, conditionally pathogenic microorganisms, blood serum, antibodies, immunoglobulins, leukocytes.

### Relevance of the Topic

Currently, with the development of livestock farms, there is a need to develop new, more effective genetic methods to increase the productivity and breeding quality of animals, to strengthen their constitutional strength[1,5].

If, on the one hand, attention is paid to the type, breed, age, constitution, individual and other characteristics of animals, on the other hand, it is necessary to take into account the microbiological parameters of their living environment[3,6].

Commonly recognized characteristics of agricultural animals of clear genetic origin include their zootechnical constitution. According to this parameter, they are divided into four types: strong, delicate, rough and loose[1,5].

Karakul sheep are divided into three types in terms of constitution: strong, thin and rough, because as a result of long-term selection work, animals with a loose constitution are almost destroyed.





The most conceptual problem of modern theoretical immunology and infectology, in our opinion, is to explain the so-called constitutional resistance of animals to most representatives of the microbial environment [1,2].

The parameters of natural resistance against opportunistic microorganisms are an indicator of the natural general infectious resistance of the macroorganism. Because of this, as an attribute of the general anti-infective resistance of animals, we took the parameters of natural resistance against opportunistic microorganisms.

Conditionally pathogenic microorganisms have become one of the leading problems of modern infectious pathology. The reason for this is that any factor of medical, veterinary, socio-economic and environmental nature leads to an increase in their pathognomic significance[2,4,5].

Currently, there is an increase in problems related to conditionally pathogenic microorganisms in humans and animals. This is primarily due to the fact that if strict preventive measures are taken against obligate pathogenic microorganisms, such measures cannot be taken against conditionally pathogenic microorganisms, because they are natural inhabitants of the animal body[1,2,7].

All of the above testifies to the relevance of this problem and requires the search and introduction of new methods and tools for the prevention and treatment of diseases caused by conditionally pathogenic microorganisms in veterinary practice.

### **The Purpose of the Research**

Study of natural immunobiological properties of Karakul sheep organism against conditionally pathogenic microorganisms.

The purpose of our research is to determine the humoral parameters and constitutional characteristics of the natural immune state of Karakul sheep of different constitutions against conditionally pathogenic microorganisms.

### **Research Materials and Methods**

The researches were conducted on 4-5 year old Karakul sheep, which differ in zootechnical structure, at the "Mubarak" Karakul breeding limited liability farm in Muborak district, Kashkadarya region.

In these studies, we examined the range of parameters of the immune status in terms of specific and non-specific indicators.

We conducted laboratory tests in the scientific research laboratories of the "Animal Physiology, Biochemistry and Pathological Physiology" and "Microbiology, Virology and Immunology" departments of our university.





We determined the dynamics of the accumulation of antibodies against colibacilli, salmonella, pasteurilla, staphylococcus and streptococcus in the blood serum of Karakul sheep of different constitutions using Wright's agglutination reaction, the amount of immunoglobulins belonging to class G and M by the Mancini immunodiffusion method, and the number of leukocytes using the Goryaev counting chamber according to the generally accepted method. .

## Research Results

We have conducted several studies to study the natural immunobiological characteristics of Karakul sheep of different constitutions.

First of all, we studied the immune status of Karakul sheep of different constitutions against conditionally pathogenic microorganisms.

**Table 1. Immune status of Karakul sheep of different constitutions against conditionally pathogenic microorganisms (M±m)**

№	Antibody spectrum	Constitution type and number of sheep		
		Strong n=50	Delicate n=40	Rough n=30
1.	Coli agglutinin	1:530±3,2	1:530±3,6	1:560±4,3
2.	Salmonella agglutinin	1:350±2,6	1:285±2,6	1:400±3,6
3.	Pasteurella agglutinin	1:430±2,9	1:430±3,2	1:460±3,9
4.	Pseudomonas agglutinin	1:400±2,8	1:350±2,9	1:490±4,0
5.	Streptococcal agglutinin	1:490±3,1	1:375±3,0	1:490±4,0
6.	Staphylococcal agglutinin	1:430±2,9	1:230±2,3	1:530±4,2

The results of the experiment show that sheep of different constitutions have a high titer of antibodies against all the bacterial antigens we studied (Table 1).

In addition, the titers of antibodies in the blood serum of sheep of different constitutions were not statistically different.

As an exception, the titers of antibodies against salmonella and staphylococci, according to which sheep with a delicate constitution were statistically significantly lower than sheep with a strong and especially rough constitution, were proven during the study.



Table 2. The content of immunoglobulins in the blood serum of Karakul sheep of different constitutions (g/l)

Sheep No	Constitution type and class of immunoglobulins					
	Strong		Delicate		Rough	
	G	M	G	M	G	M
1.	10,14	3,22	18,14	4,90	19,04	5,82
2.	13,86	7,13	11,45	7,11	8,29	6,92
3.	13,72	8,71	13,53	6,08	15,17	5,61
4.	13,17	7,57	13,77	6,08	12,81	6,78
5.	11,42	9,29	12,46	5,19	17,40	6,78
6.	12,15	4,64			11,28	7,42
7.	10,11	5,98			14,42	6,10
8.	14,17	6,71			14,13	5,83
9.	11,38	7,68			12,67	6,24
10.	13,26	4,20				
11.	15,49	4,96				
<b>M±m</b>	<b>12,62±1,07</b>	<b>6,37±0,76</b>	<b>13,87±1,66</b>	<b>5,87±1,08</b>	<b>13,91±1,24</b>	<b>6,38±0,84</b>

However, the study of the immune status of sheep of different constitutions for the composition of immunoglobulins (Table 2) and the number of leukocytes (Table 3) gave unexpected results.

Although the number of sheep of different constitutions in the research was small, the differences between the amount of immunoglobulins in their blood serum (Table 2) and the number of leukocytes in their blood (Table 3) were clearly evident.

Table 3 The number of leukocytes in the blood of Karaku sheep of different constitutions (thousand/mm<sup>3</sup>)

Sheep No	Constitution type		
	Strong	Delicate	Rough
1.	11550	12700	6400
2.	10400	7400	6850
3.	9500	9800	6750
4.	8400	4350	6750
5.	10200	9950	10900
6.	13050	13550	10800
7.	8750	11000	8200
8.	11100	9200	5950
9.	9000	10050	6050
10.	7500	10750	6750
11.	10750	9350	6000
12.	14250	11000	7350
13.	12800	8000	5500
14.	9250	11800	7250
15.	12250	17250	7000
16.	9750	7850	7650
<b>M±m</b>	<b>10531,2±25,6</b>	<b>10250±25,3</b>	<b>7262,5±21,3</b>



The results of our research showed that Karakul sheep with different zootechnical constitutions do not differ in terms of humoral indicators of immune status against conditionally pathogenic agents.

According to the composition of M and G immunoglobulins, especially according to the number of leukocytes in the blood, sheep with a fine constitution differ significantly from sheep with a strong and rough constitution.

## Conclusions

Based on the results of our research, we conclude the following:

1. There is almost no difference in antibody titers against conditionally pathogenic microorganisms in Karakul sheep of different constitutions.
2. Karakul sheep with a delicate constitution significantly differ from Karakul sheep with a strong and rough constitution in terms of cell parameters.
3. The difference in cell parameters can be the basis for concluding that there are differences in the general immune status of Karakul sheep of different constitutions.
4. The immune status of Karakul sheep of different constitutions against infectious diseases has multifaceted characteristics.
5. This shows the decisive role of genetic conditions in the formation of the natural immune state of animals against the microbial environment.

## References

1. Abdullaev M.A., Ruzikulov R.F. Immunity of the organism of agricultural animals against opportunistic pathogens. // Journal "Izvestia" of the Armenian Agricultural Academy. - Yerevan, 2004, No. 4, S. 60-61.
2. Abdullaev M.A., Khaitov R.Kh. Natural waves of the immune response of animals to the microbial environment // First Russian Congress on Pathophysiology. Pathophysiology of organs and systems. Typical pathological processes. Abstracts of reports. Moscow, 1996. - S. 333.
3. Zheleznikova G.F. Infection and immunity: strategies of both sides // Immunology. - Moscow, 2006. - No. 6. - P. 597 - 614.
4. Kudaeva O.T., Nenyasheva E.V., Kozlov V.A. Determination of the content of immunoglobulins in whole blood // Immunology. - Moscow, 2005. - No. 3. - P.189-190.
5. Maksimyuk N.N. «Adaptation, resistance, immunological reactivity of the animal organism and factors influencing its formation // Bulletin of MANEB. SPb., 2001. No. 7 (43). pp. 52-62.





6. Rumyantsev S.N. Constitutional immunity and its molecular-ecological basis. L: Science, 1983. - S.209-210.
7. Frolov A.F., Zaritsky A.M., Feldman Yu.M. Once again about the conditional pathogenicity of microorganisms. //Journal of microbiology, epidemiology and immunology. - Moscow, 1999. - No. 5. - P. 96 - 98.

