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# ANTI-INFECTION RESISTANCE OF CATTLE AGE CHARACTERISTICS

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**Annotation**
The natural immune characteristics of cattle of different ages against conditional pathogenic microorganisms were studied. In the blood serum of cattle, it was found that antibodies with a high titer from 1:100 to 1:400 are formed against conditional pathogenic microorganisms. These indicators showed that the natural immune characteristics of cattle of different ages are high, that is, they have developed natural active immunity.

**Keywords:** cattle, calf, natural resistance, conditionally pathogenic microorganisms, immune indicators, blood serum, antibodies.

## Relevance of the topic

Different types of conditionally pathogenic microorganisms living in the body of humans and animals are characterized by their large number, heterogeneity of populations, participation in various microbiocenoses[1,2,5].

It is known that microorganisms do not need to live in human and animal organisms to maintain their species. Nevertheless, some conditionally pathogenic microorganisms have adapted to live in different parts of the human and animal body (skin, mucous membrane, intestines, etc.) in certain conditions [1,5].

In most cases, for example, when the reactivity of the macroorganism is sharply reduced or in situations such as immunodeficiency, they can cause a disease for the host, causing a danger [3,5].

In recent years, new, extremely dangerous infectious diseases are emerging that are transmitted from animals to humans. In the transition stage, as a rule, the causative agents of these diseases pass the status of conditional pathogenicity.

That is why conditionally pathogenic microorganisms have become one of the leading problems of modern infectious pathology. Because conditionally pathogenic

microorganisms also act as pathogens of infectious diseases when the body's resistance decreases [2,3].

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.

It is known that there are many types of conditionally pathogenic microorganisms in the environment, but some of them are of priority in this field. In practice, the number of conditionally pathogenic microorganisms includes bacteria such as colibacillus, salmonella, pasteurella, pseudomonas, staphylococcus, streptococcus [1].

In animals, these microorganisms cause serious and life-threatening diseases. Despite the fact that special measures for their prevention, countermeasures and treatment have been developed, the urgency of the problem does not decrease [2,3].

That's why we conducted scientific-research works in order to study the level of natural immunity against conditionally pathogenic microorganisms in the body of cattle of different ages.

## The Purpose of the Research

Studying the dynamics of the accumulation of antibodies against conditionally pathogenic microorganisms in the blood serum of cattle of different ages and determining their importance in the formation of natural immunity.

## Research Materials and Methods

We conducted scientific research work on 10-day, 1-, 3-, 6-month, 1- and 2-year-old cattle at the "Hamid Livestock Oasis" farm in Pasdargom District, Samarkand Region.

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 antibody accumulation against Pseudomonas, Salmonella, Pasteurella, Staphylococcus and Streptococcus in the blood serum of cattle of different ages using Wright's agglutination reaction.

## Research Results

In our scientific studies, the immune characteristics of cattle of different ages were analyzed depending on the titer of antibodies in their blood serum.

It is known that the main cause of diseases of newborn young animals is a violation of the compatibility between the protective power of the organism and the environment.

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Animals are born with practically sterile gastrointestinal and respiratory organs, but at the first contact with the external environment, they are immediately affected by microorganisms [1,2].

Not only pathogenic microorganisms have a negative effect on the newborn organism, but conditionally pathogenic microorganisms also have an effect as the causative agents of infectious diseases when the body's resistance is reduced [1,3,4,5].

Therefore, initially, we studied and analyzed the dynamics of the accumulation of antibodies against conditionally pathogenic microorganisms in the blood serum of 10-day, 1.3- and 6-month-old calves (Tables 1 and 2).

As can be seen from Table 1, the blood serum of newborn 10-day-old calves has a high titer of antibodies against conditionally pathogenic microorganisms, that is, against Pasteurella - 1:250, Salmonella - 1:200, Pseudomonads - 1:150, Streptococci - 1:100, Staphylococci - The presence of specific agglutinins was determined at a titer of 1:180.

Table 1 Accumulation dynamics of antibodies against conditional pathogenic microorganisms in the blood serum 10-day-old and 1-month-old calves (M±m)

| № | Antibody spectrum | Age and number of calves (n =) | |
|---|---|---|---|
| | | 10 days (n =5) | 1 month (n =5) |
| 1 | Pasteurella agglutinin | 1:250±7,07 | 1:350±8,36 |
| 2 | Salmonella agglutinin | 1:200±6,32 | 1:400 ±8,94 |
| 3 | Pseudomonas agglutinin | 1:150±5,47 | 1:400 ±8,94 |
| 4 | Streptococcal agglutinin | 1:100±4,47 | 1:250±7,07 |
| 5 | Staphylococcal agglutinin | 1:180±6,00 | 1:250±7,07 |

This testifies to the formation of passive, that is, colostral immunity in the body of calves.

It was found that the blood serum of 1-month-old calves contains specific agglutinins at a titer against Pasteurella - 1:350, Salmonella - 1:400, Pseudomonads - 1:400, Streptococci - 1:250 and Staphylococci - 1:250, and that they have wave dynamics.

Table 2 Accumulation dynamics of antibodies against conditionally pathogenic microorganisms in the blood serum 3- and 6-month-old calves (M±m)

| № | Antibody spectrum | Age and number of calves (n =) | |
|---|---|---|---|
| | | 3 months (n =5) | 6 months (n =5) |
| 1 | Pasteurella agglutinin | 1:350±8,36 | 1:300±7,74 |
| 2 | Salmonella agglutinin | 1:400 ±8,94 | 1:400 ±8,94 |
| 3 | Pseudomonas agglutinin | 1:400 ±8,94 | 1:350±8,36 |
| 4 | Streptococcal agglutinin | 1:230 ±6,78 | 1:300±7,74 |
| 5 | Staphylococcal agglutinin | 1:300±7,74 | 1:260±7,21 |

Table 2 shows that the blood serum of 3-month-old calves contains specific agglutinins against Pasteurella - 1:350, Salmonella - 1:400, Pseudomonas - 1:400, Streptococcus - 1:230 and Staphylococcus - 1:300, and that they have wave dynamics. was found to be.

In the blood serum of 6-month-old calves, specific agglutinins were found against Pasteurella - 300, Salmonella - 1:400, Pseudomonads - 1:350, Streptococcus - 1:300 and Staphylococcus - 1:260. This indicates that a natural active immunity has been formed in the calf's body.

Then, we studied and analyzed the dynamics of the accumulation of antibodies against conditionally pathogenic microorganisms in the blood serum of 1- and 2-year-old cattle (Table 3).

Table 3 Accumulation dynamics of antibodies against conditionally pathogenic microorganisms in the blood serum of 1- and 2-year-old cattle (M±m)

| № | Antibody spectrum | Age and number of cattle (n =) | |
|---|---|---|---|
| | | 1 year old (n =5) | 2 years old (n =5) |
| 1 | Pasteurella agglutinin | 1:350±8,36 | 1:260±5,09 |
| 2 | Salmonella agglutinin | 1:300±7,74 | 1:400±6,32 |
| 3 | Pseudomonas agglutinin | 1:350±8,36 | 1:380±6,16 |
| 4 | Streptococcal agglutinin | 1:350±8,36 | 1:225±4,74 |
| 5 | Staphylococcal agglutinin | 1:300±7,74 | 1:400±6,32 |

As can be seen from Table 3, it was found that the blood serum of 1-year-old cattle contained specific agglutinins against Pasteurella - 350, Salmonella - 1:300, Pseudomonads - 1:350, Streptococcus - 1:350 and Staphylococcus - 1:300.

In the blood serum of 2-year-old cattle, against Pasteurella - from 1:260 to 1:350, Salmonella - from 1:300 to 1:400, Pseudomonas - from 1:350 to 1:380, Streptococcus - from 1:225 to 1:350 and staphylococci - the presence of specific agglutinins in the titer from 1:260 to 1:400 and their wave-like dynamics were found.

This indicates that a natural active immunity has been formed in the body of cattle.

Also, in the blood serum of cattle of all ages that were studied, against Pasteurella - from 1:250 to 1:350, Salmonella - from 1:200 to 1:400, Pseudomonas - from 1:150 to 1:400, Streptococcus - from 1:100 to 1 It was found that there are specific agglutinins in the titer from 1:180 to 1:400 to staphylococci.

The results of our research showed that the same active immune responses were observed in all other groups of cattle starting from 1 month of age.

The data obtained in our research indicate that the first passive and then active immunity is formed in a natural way from the day of birth of cattle of different ages.

Fluctuation of antibody titer against pastrella, staphylococcus and streptococci does not even exceed the limits of average statistical parameters, and antibody titer against salmonella and pseudomonads was noted to be at a stable high level in cattle of all ages.

The results of our research showed that from the age of one month, the same active immune responses were observed in all other groups of cattle. This indicates the absence of individuals with weak immune reactivity in calves.

**Conclusions**

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

1. It was found that in the blood serum of cattle of different ages, antibodies with a high titer from 1:100 to 1:400 are formed against conditionally pathogenic microorganisms. This indicates that their body has formed a natural active immunity against conditionally pathogenic microorganisms.
2. A characteristic feature of natural immune responses for cattle is that the titer of antibodies against conditionally pathogenic microorganisms does not fall below 1:50 in both calves and older cattle.
3. This indicates the absence of individuals with weak immune reactivity in cattle to the antigenic effect of the microbial environment.

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