

## RESULTS OF STUDIES ON THE DIAGNOSIS OF BOVINE BRUCELLOSIS USING THE ELISA TEST

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**Abstract.** In order to determine the immune background level against bovine brucellosis, studies were conducted on blood samples taken from 65 cattle in two farms, “Olimjon xazinasi” and “Otajon-ota,” located in Buloqboshi district of Andijan region. When the blood samples were examined using the ELISA test to assess the immune background level, positive results were recorded in 54 cattle (83%) and negative results in 17%.

**Keywords:** brucellosis, immune background, reaction, serological, bacteria, disease, cattle, infection, blood, serum, animal.

**Relevance of the topic.** At present, among the infectious diseases that hinder the development of animal husbandry and increase in livestock numbers while causing significant economic damage, brucellosis occupies a special place. Developing measures for prevention and early diagnosis of the disease remains one of the main tasks facing veterinary specialists. Based on these data, infectious animal diseases are considered the greatest threat to livestock farming, serving as a factor that prevents industry development and achievement of high profitability. Since bacterial infectious diseases are characterized by high morbidity and mortality, they can spread over large areas in a short time, requiring significant expenditures for prevention and treatment measures. In particular, one of the most dangerous infectious diseases, brucellosis, is of global social importance, being a bacterial zoonosis that negatively affects human health and the productivity of food-producing animals. The disease is caused by pathogens belonging to the genus *Brucella*, the number of which is increasing, and they are capable of causing disease in various animal species. Infected cattle and small ruminants are the main sources of infection, as they excrete the bacteria into the environment through milk and reproductive discharges [4].

**Materials and methods.** The studies were carried out in Buloqboshi district of Andijan region, in the farms “Olimjon xazinasi” and “Otajon-ota.” A total of 65 blood serum samples were collected from 134 cattle and examined using the ELISA “sandwich” method. The Enzyme-Linked Immunosorbent Assay (ELISA) method was used to detect anti-brucellosis IgG antibodies in bovine blood. Antigen was fixed to the inner surface of the microplate wells. If antibodies were present in the sample, they bound to the antigen. This antigen-antibody complex was detected with the help of horseradish peroxidase-labeled rat monoclonal antibodies. When the tetramethylbenzidine (TMB) substrate was added, a color developed in the well. The color intensity was proportional to the amount of IgG antibodies against the antigen [1, 2].

**Results of the study.** To determine the immune background level against brucellosis in cattle from Andijan region, a total of 65 samples were studied at the Regional State Diagnostic

Center for Animal Diseases and Food Safety using the “Brucellosis-Antibody-IFA-BEST” kit according to the manufacturer’s instructions (Table 1). In the Buloqboshi district, the average positive immune background level against brucellosis in cattle was found to be 41.5%, while the negative indicator was 8.5%. In the farm “Olimjon xazinasi,” 37 samples were collected, of which 1 was unsuitable due to hemolysis.

As a result of ELISA testing, 29 blood samples were IgG-positive, while 3 were IgG-negative. In addition, 3 blood samples from cattle were IgM-positive, and 1 was IgM-negative. The overall immune background level against brucellosis was determined to be 86.5%

**Table 1. Results of determining the immune background in blood serum of vaccinated cattle against brucellosis in farms of Andijan region**

T/R	District and farm name	Blood serum sample	Unsuitable	Test results			
				IgG		IgM	
				positive	negative	positive	negative
1	Buloqboshi district “Olimjon xazinasi”	37	1	29	3	3	1
2	Buloqboshi district “Otajon-ota”	28	0	18	4	5	1
	<b>Total</b>	<b>65</b>	<b>1</b>	<b>47</b>	<b>7</b>	<b>8</b>	<b>2</b>

**Note:**

**Positive** – indicates that the antibody titer level against brucellosis has been formed in vaccinated cattle.

**Negative** – indicates that the antibody titer against brucellosis has not been observed in vaccinated cattle; a negative result shows that the cattle are healthy, but the antibody titer has not yet developed.

In the farm “Otajon-ota” of Buloqboshi district, blood samples were collected from a total of 28 cattle. Among them, 18 blood samples gave a positive IgG result, while 4 samples gave a negative IgG result. For IgM, 5 blood samples were found to be positive, and 1 blood sample was negative. In total, 23 positive results were recorded from the blood samples collected from cattle in this farm. Based on the study results, the immune background against brucellosis in cattle of this district was determined to be 82.1%.

**Conclusion**

1. In the farm “Olimjon xazinasi” of Buloqboshi district, among blood samples collected from 37 cattle, the immune background level against brucellosis was determined to be 86.5%.

2. In the farm “Otajon-ota” of the same district, blood samples collected from 28 cattle showed an immune background level of 82.1%.

Thus, the average immune background level in cattle, based on 65 blood samples taken from the farms “Olimjon xazinasi” and “Otajon-ota” of Buloqboshi district, Andijan region, was determined to be 84.3%.

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