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HEMATOLOGICAL INDICATORS OF CHICKEN WHO RECEIVED FEED ADDITIVES ON THE BASIS OF CHANCANAY ZEOLITES OF AKJAR BENTONITES AND KOKSUIC SHUNGYTS

Abstract

It has been studied for about the state of general physiological parameters of the blood of the broilers who received dietary supplements and «Ceobenth» and «Tseoshun» Getting e Chakanayskih based on zeolites, Akzhar bentonites and Koksuschungites.

The study was conducted on the total protein content, hemoglobin meters morphological indicators of blood glucose wells, calcium and phosphorus in the background feeding the birds the two formulations of natural minerals.

As a result of the conducted studies it was established that the application of «Ceobenth» and «Tseoshun» has a beneficial effect on the body of broiler chickens.

Keywords: *chicken -broilers, glucose, hemoglobin, erythrocytes, leukocytes, leukogram.*

Meat production of chickens depends on the rate of growth, meat precocity, live weight of the bird, payment of feed growth, quality of meat.

According to Masliev O.I. and Stollar T.A., the value of meat, its composition, juiciness, color and taste are largely dependent on the feeding of the bird. Improperly balanced diets without age, poultry cross, fodder quality can reduce the grade and taste of poultry meat.

In the practice of industrial poultry farming and fodder production, various drugs that reduce the negative effect of toxic substances on the poultry organism are widely used.

When determining the meat production of broilers, the slaughter yield, the ratio of edible parts, is of great practical importance [1].

The quality of broiler meat is determined by a combination of physico-chemical, biological and organoleptic indicators.

The experiments were carried out on broiler chickens, which were selected according to the principle of analogs and divided into two experimental and one control groups of 30 heads each. The studies were performed against the background of feeding birds with full-grown standard mixed fodders, nutritionally balanced, amino acid composition.

Empirically to main groups of birds were specified ration of fodder additives creates formulations in the amount of 4% to the weight of the mixed fodder. The first group of birds served as a control and received the main diet without the addition of mineral fodder supplements. The second group of birds in addition to the main diet received a feed additive «Ceobenth» by the recipe number 1. The third group of birds in addition to the main diet received a feed supplement "Tseoshun" according to the recipe number 2.

After the selection of blood was determined:

- glucose - glucose oxidase method using the «Glucose – FKD» kit. When oxidizing beta-D-glucose with air oxygen under the action of glucose oxidase, an equimolar amount of hydrogen peroxide is formed, which oxidizes chromogenic substrates in the presence of phenolic compounds to form a colored product, the color intensity of which is directly proportional to the glucose concentration;

- hemoglobin - hemoglobin cyanide method using a set of chemical reagents to determine the mass concentration of hemoglobin of the blood. Hemoglobin, when interacting with ferrous chloride, is oxidized to methemoglobin, which forms a colored hemoglobin cyanide with acetone cyanohydrate, the color intensity of which is proportional to the content of hemoglobin;

- counting of red blood cells and leukocytes - was carried out in Goryaev's chamber by counting the cells of white and red blood, respectively, in 5 large squares and 5 bands;

- differential leukocyte count (leikogram) - held in blood smears stained by the method of Romanovsky [2].

The study showed that, depending on the formulation of the feed additive, as well as the characteristics of the organism general physiological blood of the bird figures were subject to change.

By results of researches it is established, that such parameters of a blood, as a hemoglobin, erythrocytes and leucocytes at an experimental bird were within the limits of physiological norm. However, it should be noted that the presented formulas of feed additives do not affect different blood indices differently [3].

Table 1 shows the data on the change in the general physiological parameters of the blood of broiler chickens who received feed supplements in the diet according to formulas 1 and 2 and without them.

Table 1 – General physiological indicators of the blood of broiler chickens ($X \pm Sx$, $n = 30$)

| Index | Group | | |
|------------------------------------|---------------|---------------------|---------------------|
| | 1 TO control | 2 About experienced | 3 About experienced |
| Total protein, g /% | 3,4 ± 0,04 | 3,5 ± 0,06 | 3,8 ± 0,09 |
| Hemoglobin, g / l | 86,75 ± 0,95 | 99,50 ± 5,10 | 96,50 ± 1,19 |
| Erythrocytes, 10 ¹² / L | 3,473 ± 0,250 | 3,9 45 ± 0,080 | 3, 8 95 ± 0,042 |
| Leucocytes, 10 ⁹ / l | 26,63 ± 0,47 | 28,88 ± 0,63 | 26,75 ± 0,75 |
| Glucose, mmol / l | 4,6 ± 0,20 | 8 ,2 ± 0,32 | 9,4 ± 0,43 |

Thus, in chickens of the 2nd and 3rd test groups who received the feed supplement «Ceobent», the hemoglobin increases by 7,68 and 9,75 g / l, respectively, compared with the control group ($P < 0,05$ and $P < 0,001$). It should be noted that the values of total number of erythrocytes and leukocytes in the blood test group is significantly higher in comparison with the third group of chicks fed a diet of feed additive «Tseoshun» [4].

Carbohydrates are necessary to maintain the vital physiological processes that occur in the body. In the digestive tract of birds, carbohydrates come with food in the form of polysaccharides, disaccharides and monosaccharides. From the digestive tract to the blood carbohydrates are absorbed in the form of monosaccharides, mainly in the form of glucose. The absorbed glucose enters the liver, where 3-5% of it turns into glycogen, and the rest enters the blood and tissues.

According to the table 1 in the blood broilers 2-nd and 3-rd groups glucose has physiological norm, its amount in comparison with these indices in blood of the control group increased by 3.8 and 4 and 8 mmol / l, respectively. Consequently, mineral fodder additives had an effect on the increase in glucose in the blood of broilers 2-nd and 3-rd ($P < 0,001$) [5].

Table 2 shows the leukogram of the blood smears of the test bird.

Table 2 – Leikogram of blood of broiler chickens,% ($X \pm Sx$, $n = 30$)

| Group | B | E | Neutrophils | | L | Mon |
|---------------------|------------|------------|-------------|-------------|-------------|------------|
| | | | P | | | |
| 1 TO control | 2,0 ± 0,20 | 2,3 ± 0,30 | 0,5 ± 0,02 | 28,0 ± 0,65 | 56,4 ± 0,59 | 8,0 ± 0,16 |
| 2 About experienced | 2,8 ± 0,10 | 4,5 ± 0,40 | 0,6 ± 0,02 | 26,5 ± 0,60 | 59,5 ± 0,54 | 8,5 ± 0,20 |
| 3 About experienced | 2,6 ± 0,12 | 4,8 ± 0,30 | 0,7 ± 0,02 | 25,5 ± 0,60 | 57,5 ± 0,64 | 8,3 ± 0,19 |

Introduction of experimental groups in the chickens' diet leads to an increase in all types of leukocytes. However, in the blood of the second experimental group of chickens, these indicators are higher in comparison with the third experimental group. Thus, in the blood of broiler chickens fed «Ceobent» fodder supplement, the basophil values were 2,8%, which is 0.8% higher than the control group. At the same time, the number of basophils in the blood of the experimental group of chickens received the feed additive «Tseoshun» in the diet is 0.2% higher than in the second group. It should also be noted that there is an increase in eosinophils in the third test group of chickens by 0.3% compared to the second test group. This indicates that the feed additive «Zeoshun» has a more positive effect on the resistance of the body [6].

Mineral fodder additives and «Ceobent» and «Tseoshun» also affected the number of neutrophils that play an important role in tissue regeneration, formation and transfer of antibodies. There is an increase in stab neutrophils by 0,1 % and 0,2% (with $P < 0,001$ in 2nd group), and segmented, on the contrary, reduce their number from 28,0 to 26,5%. Data are reliable for the 2 nd and 3 rd group for $P < 0,05$ and $P < 0,01$, respectively.

Studies have shown lymphocytes that are observed in the increase in phagocytic function, and in 2 nd and 3 rd experimental groups, where the chickens received feed additives «Ceobent» and «Tseoshun». If the control group, the number of lymphocytes was 56%, in the 2 nd and 3 rd group – 59,5 and 57,5% respectively, $P < 0,05$. The presented data also indicate that the feed additive «Ceobent» has a greater phagocytic activity in comparison with «Tseoshun» [7].

The change in monocytes in broiler blood also indicates an increase in monocytes in comparison with the control group.

