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CHANGE OF ASH AND TOTAL ORGANIC SUBSTANCES OF THE HUMERUS CHICKEN BROILER APPLIED PROBIOTICS DURING POSTNATAL ONTOGENESIS

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Summary: The dynamics of changes in the amount of ash and total organic matter in the composition of the humerus in the postnatal ontogenesis of broiler chickens has been studied. An increase in the relative amount of ash and a decrease in the relative amount of total organic substances in the humerus from the first day to 35 days of age of postnatal ontogenesis of broiler chickens were noted; a more intensive course of the process of increasing the relative amount of ash and a decrease in the relative amount of total organic substances in the humerus was observed until the 14th day of postnatal ontogenesis of broiler chickens.

Key words: poultry, chickens, broiler, postnatal ontogenesis, humerus, ash, total organic substances, growth rate, relative quantity, experience, probiotic.

Introduction. Broilers are the main source of poultry meat production. To this day, our country intensively cares for broiler chickens and production of products from them. This meets the population's need for poultry meat.

The main poultry products are eggs and meat used for food; By - products are poultry feathers and fairies. Fodder flour is made from slaughter and poultry processing waste. Bird droppings are a valuable organic fertilizer. In poultry farming, eggs are obtained mainly from chicken breeds and egg mixtures, partly meat-egg and meat direction. Meat chickens, ducks, turkeys, geese, guinea fowls, meat pigeons are bred for meat production.

According to some authors, the addition of probiotics based on Bacillus subtilis as a supplement to the main diet of broiler chickens has a positive effect on the mineralization of shin bone tissue, that is, the amount of calcium, phosphorus and ash in the samples was slightly higher in the bone under study compared to the control group. The authors stated that compared to the chicks of the control group, bone marrow involution occurred earlier, the development of bone diaphysis and epiphysis tissues was delayed, the epiphyseal bone was actively subjected to the process of ossification, bone diaphyseal bundles were well developed, there is a high density of hematopoietic cells [1].

Minerals play an important role in all metabolic functions of the body. They are part of the tissues and fluids of the body, directly participate in the synthesis of complex organic compounds necessary for the good growth and development of animals and birds [4, 5, 6].

When adding corn flour to the diet of broiler chickens and other groups of poultry, it was established that the productivity and digestibility of nutrients, especially in laying hens, are significantly increased [2, 3]. According to the authors, the inclusion of corn flour in the diet of laying hens had a positive effect on feed intake compared to control chickens throughout the experiment, and at week 48 there was a decrease in serum proteins, liver and kidneys, lipid metabolites. The phosphorus indicators did not differ significantly from those in the control group. It was also noted in the experiments that organic substances, raw protein, raw fat and raw fiber enhance the digestive process.

The influence of biologically active substances on the morphofunctional characteristics of broiler chickens has been studied. At 10 and 40 days of age, live weight and daily growth were

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higher in the experimental group compared to the control group, body length, chest depth, chest width, length of caviar were also superior in the experimental group, the composition of the pectoral muscles. It was noted that the amount of moisture was high, the change in the amount of fat in the meat was wavy, and the amount of ash in the chest muscle practically did not change compared to those in the control group [7].

Materials and methods. Research work was carried out on the bones of broiler chickens of the one-day cross "ROSS 308", imported from LLC "Dargom Parranda Fayz" of the Samarkand region. They were divided into 4 groups of 40 chicks each. Chickens of all groups were fed the same diet and vaccinated in farm conditions. Chickens of the first group were given only feed and water, chickens of the second group were given feed, water and a preventive antibiotic - enrofloksatsin (1ml/1l of water), the third and fourth groups were given 1 ml in addition to the feed. (1,0 x 10^9 CFU) per 1 liter of drinking water chickens of the 3rd experimental group were injected with a probiotic prepared from the suspension Bacillus subtilis, isolated by SamSUVMLB specialists, for 7 days from 1 day to 7 days. During this period, chickens of the 4th experimental group were added 2 ml (1,0 x 10^9 CFU) per 1 liter of drinking water. Morphometric measurements were carried out on the 1st, 7th, 14th, 21st, 28th and 35th days of the experiment. The humerus of broiler chickens of the appropriate age were taken for the object of research.

To determine the amount of ash in the bone, the dried bones were ground into powder in a small electric mill. Bone powder was placed in large crucibles, brought to a constant mass, and burned in a muffle furnace MP-2UM at a temperature of 500-600 °C for 4-5 hours. After cooling the cremated bone powder (ash material) in the desiccator, together with the crucibles, their mass was measured according to the KERN.PBJ-N scale, as well as the percentage of bone mass the dry state in air (D.S.A.) and absolutely dry state (A.D.S.) were calculated according to the following formulas, which were considered to be used:

D.S.A. $$X_1 = \frac{a \ \ 100}{B}$$

At the same time: X_1 – the percentage amount of ash substance desired;
a – the mass of the ash substance;
V – the mass of the determined bone (in a dry state);
100 – percent viewing.

A.D.S. $$X_2 = \frac{100 \ \ X_1}{100 - \%\,г.н}$$

At the same time: X_2 – A.D.S. of the desired ash substance, amount of interest.

All digital data obtained as a result of scientific research were subjected to mathematical processing according to the method of E.K. Merkureva.

Mathematical and statistical analysis was carried out using Student and Fisher criteria in a Microsoft Excel computer table.

Results and their analysis. As a result of scientific research, it was noted that changes in the amount of ash content and total organic matter in bones during the postnatal ontogeny of broiler chicks show a unique dynamic.

The sum of ash in the humerus on the 1st day of postnatal ontogenesis of broiler chicks of the first experimental group was 31,79 ± 0,5% and on the 7th day this indicator practically did not change (33,23 ± 0,43%, K = 1.05; $p < 0.02$), a slight increase in intensity on the 14th day (39,44 ± 0,69 %, K = 1.18; $p < 0.02$) and a noticeable lack of increase in intensity in the subsequent stages of

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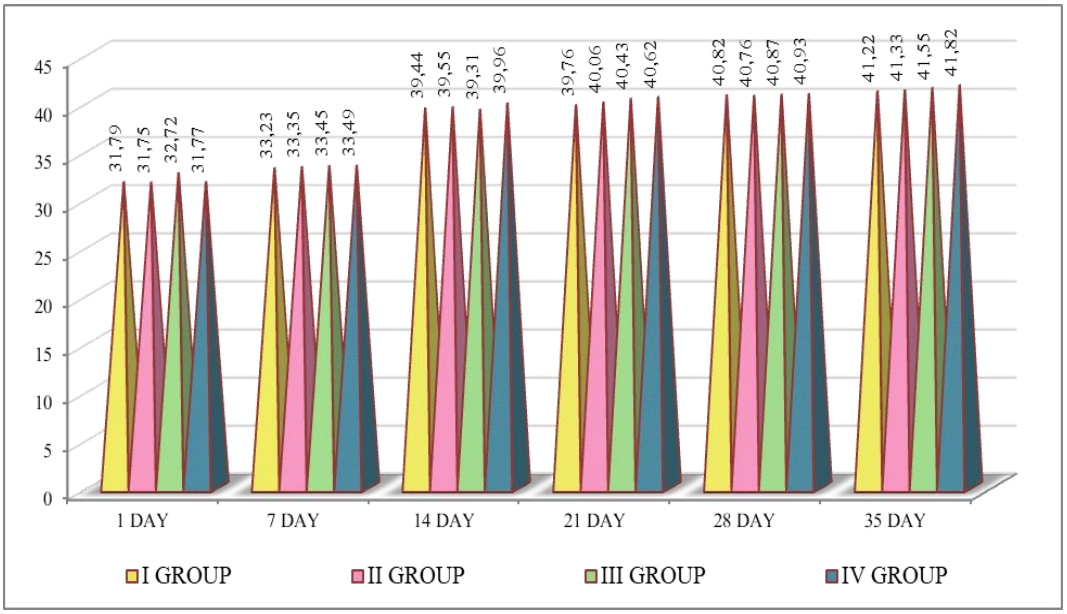
the change, i.e. on 21 days - by 39,76 ± 0,76% (K = 1,00).), after 28 days - by 40,82 ± 0,95%, and after 35 days - by 41,22 ± 0,88% (K = 1,0; P < 0.03). The relative indicator of total organic substances in the humerus content was slightly higher (68,21 ± 0,57%; p < 0,01) in broiler chickens of this experimental group at 1 day old age, and in the subsequent studied days of postnatal development it decreased. on the contrary, it decreased to the ash, on the contrary. That is, this figure was 66,77 ± 0,72% on the 7th day, 60,56±0,61% on the 14th day (K = 0,90; p < 0,02), on the 21st day it was 60,24 ± 0,7%, 59,18 ± 1,07 % on the 28th day, 59,78 ± 1.28 % on the 35th day (p < 0.03).

The amount of ash in the humerus of broiler chickens of the second experimental group on the first day of postnatal ontogenesis was 31,75 ± 0,65% and on the 7th day this figure increased slightly, i.e. 33,35 ± 0,51%, K = 1,05, p < 0.02, increase in intensity was observed on day 14 (39,55 ± 0,74%, K = 1,19; p < 0,02) and gradually increased in subsequent stages of progression, i.e. by 40,06 ± 0,64% (K = 1,01) on 21 day, 40,76 ± 0,83 % 28th day, 41,33 ± 0,81%, 35th day (K = 1,01; p < 0,02). The amount of total organic substances of the humerus of broiler chickens in this group ranged from 68,25 ± 0,39% on the 1st and 66,65 ± 0,72% on the 7th day of postnatal ontogenesis (K = 0,98; p < 0,02), to 60,45 ± 0,65.% on the 14th day, to 59,94 ± 1,34% on the 21st day (K = 99; p < 0,03), on the 28th day to 59,24 ± 1,13% (K = 0,99), on the 35th day decreased to 58,67 ± 0,9%. At the studied stages of postnatal development of broiler chickens, the relative ash index of the humerus increased by 1,3 times, and the relative indicator of total organic subsyances decreased to 0,86 times.



Dynamics of changes in the amount of ash in the humerus of broiler chickens (%)

The relative amount of ash in the humerus of broiler chickens of the third experimental group on the first day of their postnatal development was 32,72 ± 0,46%, on the 7th day – 33,45 ± 0,8%, and on the 14th day it increased to 39,31 ± 0.82% (K = 1,18; p < 0.03) and significantly without changing this indicator in the following days, i.e. 41,55 ± 0,66% on the 35th day (K = 1.02; p < 0.02). The relative amount of total organic substances in the humerus from the 1st to the 14th day of postnatal ontogenesis of broiler chickens ranges from 68,28 ± 0,45% to 60,69 ± 0,81%, or a growth factor of 0,91 compared to 7 days decreases by 10 times. and minor changes in the following days of the study, i.e. on the 21st day by 59,57 ± 1.29%, on the 28th day by 59,13 ± 1,24% (K = 0,99; p < 0.03), and on the 35th day it was 58,45 ± 0,96%.

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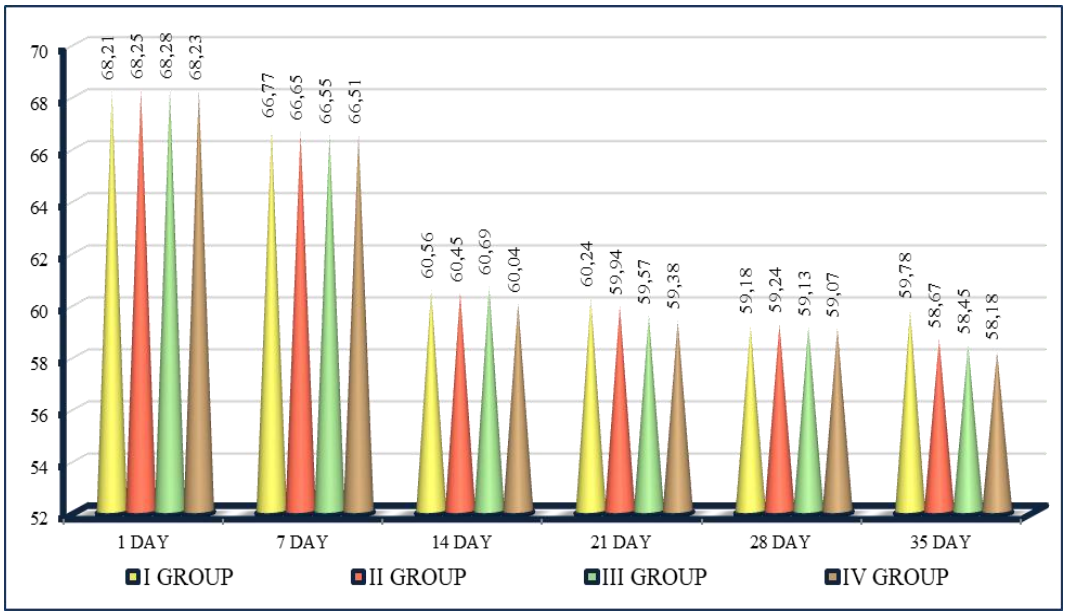
In the fourth experimental group in broiler chickens on the first day of postnatal ontogenesis, the relative amount of ash in the humerus was 31,77 ± 0,43%, on the 7th day, on the 14th day it increased to 33,49 ± 0,54%. to 39,96 ± 0,88% (K = 1,19; p < 0,03), increasing to 40,62 ± 0,5% on the 21st day, noticeable from the 28th day to the 35th, there was an increase from the 40,93 ± 0,85% to 41,82 ± 0,93%. The amount of total organic substances in the humerus is slightly higher in 1 day in broiler chickens – 68,23 ± 0,59%, on day 7 – 66,51 ± 0.75%, on day 14 – 60,04 ± 1,29% (K = 0,9; p < 0,02) it decreased to 59,38 ± 1,37% on day 21, to 59,07 ± 1,01% on day 28, to 58,18 ± 1,01% (K=0.98) on day 35. From the first day of postnatal ontogenesis to the 35th day of postnatal ontogenesis, the growth rate of the relative amount of ash in the humerus of broiler chickens increased by 1.32 times, and the growth rate of the relative amount of total organic substances decreased to 0,85 times.



Dynamics of changes in the amount of total organic substances in the humerus of broiler chickens (%)

Conclusion:

- Due to the high accumulation of minerals in the bones of broiler chickens cross ROSS 308 and, in turn, a decrease in the ratio of total organic substances, the relative amount of ash in the humerus from the first day of the postnatal ontogenesis by 35 years was noted that it increases to a day, and the relative amount of total organic substances decreases during this period;

- All experimental groups of cross-broiler chickens ROSS 308 had an increase in the relative amount of ash in the humerus and a decrease in the relative amount of total organic substances, which was slightly accelerated until the 14th day of postnatal ontogenesis;

- changes in the relative amount of ash and total organic matter in the humerus from the first day to the 7th day in 4 experienced broilers, who were given 2 ml (1,0 x 10^9 CFU) mixed with 1 liter of drinking water probiotic suspension containing Bacillus subtilis in chickens on the 35th day was characterized by an increase in ash and a decrease in total organic substances, which was slightly lower than in other experimental groups;

- according to the results of experiments, taking into account the fact that probiotics improve the microflora of the gastrointestinal tract of broiler chickens, enhance the metabolic process in their body and, as a result, increase the supply of calcium and phosphoric acid salts in the bones, 2 ml (1,0

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x 10^9 CFU) from the first to the 7th day of postnatal ontogenesis. It is recommended to add probiotics to 1 liter of drinking water.

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