



Oral presentation

The impact of feed additives made of marine hydrobionts on the condition of broiler chicken bone tissue

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Abstract

The aim of the scientific work was to define the strength of bone tissue of broiler chickens and the concentration of calcium and phosphorus in their bone tissue while adding such two feed additives as a mineral feed additive (MFA) and a protein-and-mineral feed additive (PMFA) to broiler chicken ration. The feed additives are made of milled marine hydrobionts remnants after their initial processing (Patents of Ukraine No. 34634 and No. 42687). MFA is made of Mediterranean mussel shells (*Mytilus galloprovincialis*) and sea water. PMFA contains big mussel shells, small mussel bodies, red algae *Phyllophora* (*Phyllophora nervosa*) and sea water. Shin bones of 42-day-old chickens served as the material for the present scientific research. The experiment was conducted on the basis of 5 groups of Ross 308 broiler chickens. Chickens of the control group received only the main ration (MR) that was well-balanced in the main nutrients. Chickens of the experimental groups that were aged from 20-day-old to 42 day-old were given feed additives along with the main ration. Chickens of the D-1 and D-2 groups received mineral feed additive (MFA), while the D-3 and D-4 groups were given protein-and-mineral feed additive (PMFA). Broiler chickens of the D-1 and D-3 groups received only 93% of the main ration and 7% MFA and PMFA correspondingly; broiler chickens of the D-2 and D-4 groups in addition to the main ration (100%) received 7% MFA and PMFA correspondingly. Feeding broiler chickens with feed additives contributed to the increase of their bone tissue mineralization. Thus, the concentration of non-organic calcium and total phosphorus in the bones of the D-1 group of chickens increased correspondingly by 19,9 and 34,1% ($p \leq 0,01$), the D-2 group by 23,6% ($p \leq 0,05$) and 43,0% ($p \leq 0,001$), the D-3 group by 16,8% and 43,6% ($p \leq 0,001$), the D-4 group by 34,2% ($p \leq 0,05$) and 70,9% ($p \leq 0,01$). Using feed additives led to the improvement of broiler chicken shin bones strengths. The mechanical bending tension of bones that corresponds to the strength indicator was higher: the D-1 group of chickens by 10,9%, the D-2 group by 48,9% ($p \leq 0,001$), the D-3 group by 10,8% ($p \leq 0,001$) and the D-4 group by 52,2% ($p \leq 0,05$). Thus, the broiler chickens who received feed additives along with the main ration had more bone strength, higher calcium and phosphorus concentration in their bone tissues than the broiler chickens that were given feed additives as a part of their main ration.

Keywords: broiler chickens, feed additives, marine hydrobionts, calcium, phosphorus, strength, bone tissue

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