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Chudak R.A.*Doctor of Agricultural Sciences, Professor**Vinnitsia National Agrarian University*[DOI: 10.24412/2520-6990-2021-1097-35-37](https://doi.org/10.24412/2520-6990-2021-1097-35-37)**GROWTH AND HEMATOLOGICAL PARAMETERS OF CHICKENS UNDER THE ACTION OF WORMWOOD EXTRACT****Abstract.**

The article presents the research results on productive and metabolic effects of wormwood extracts used in the feeding of young laying hens.

Keywords: replacement young, wormwood extract, growth, safety, hematological parameters.

Wormwood (*Artemisia absinthium*) is a medicinal plant containing essential oil (0.5-2%), flavonoids, tannins, organic acids, vitamin C, B and others. Wormwood is one of the representatives of bitterness, it stimulates the appetite, reflexively stimulates the activity of the glands of the digestive tract, increases the secretion of bile, pancreatic and gastric juices [1, 2].

The aim of our research was to establish the action of wormwood extract on the growth intensity and hematological parameters of young laying hens.

Material and methods of research. Experiments on young chickens were carried out at JSC Tulchin Poultry Plant considering the basic requirements for the microclimate, including temperature and light regimes.

Replacement young animals were kept in cage batteries at density of 32 heads. Three-day-old Lohmann-Brown crossbred animals were selected for the experiment. 4 groups were formed, each group included 150 heads. The experiment lasted 105 days (Table 1).

Table 1

The scheme of the experiment on the use of wormwood extract in the chicken feeding (per 1 kg of live weight per day)

Group	Animals number in the group, heads	The main period of the experiment (duration 105 days)
I - control	150	BD (complete feed)
II - experimental	150	BD+0.36 ml of extract
III - experimental	150	BD+0.65 ml of extract
IV - experimental	150	BD+0.9 ml of extract

Hematological researches were performed according to generally accepted methods [3-9].

Research results. The growth rate of young chickens was determined by decadal weighing. According to research results, wormwood extract used in

the young chicken feeding caused a slight increase in relative growth and preservation of livestock. However, the mechanism of influence of the feed factor on growth and development cannot be understood without the study of hematological parameters.

Table 2

Growth and safety of chickens

Group	Live weight, r		Live weight gain			Livestock safety, %
	experiment beginning	experiment finishing	during the experiment, g	average daily gain, g	relative increase, %	
I	130	1,195±38	1,065	10.14	160.8	94.6
II	126	1,194±45	1,068	10.17	161.8	96.0
III	133	1,265±38	1,132	10.78	161.9	94.6
IV	124	1,242±47	1,118	10.64	163.6	94.6

Therefore, we researched the main morphological parameters of the chicken blood (Table 3).

Table 3

Hematological parameters of chicken blood, M±m, n=4

Indicator	Groups			
	I	II	III	IV
RBC, cells /L	4.2±0.02	5.8±0.65*	4.5±0.33	6.3±0.77*
Index of RBCs phase-shifting	1.20±0.006	1.65±0.19*	1.29±0.09	1.81±0.22*
WBC, g/L	11.7±1.00	12.3±1.42	13.0±0.24	10.5±1.25
Index of WBCs phase-shifting	0.98±0.08	1.03±0.12	1.08±0.02	0.88±0.10
Hemoglobin, g/L	68.0±7.1	54.8±1.4	53.3±2.0	61.3±1.6
Amount of hemoglobin per RBC, pg	16.2±1.7	9.49±1.3*	11.7±0.5*	9.65±1.0*
Colour indicator	1.4±0.15	0.8±0.11*	1.0±0.05	0.8±0.09*
ESR, mm in an hour	1.7±0.17	1.5±0.33	1.0±0.00	1.0±0.00
ESR, mm in a day	50.5±0.74	42.2±5.20	52.2±1.52	51.7±0.99
Leukocyte formula of chicken blood, %				
Basophils	3.0±0.20	2.4±0.4	1.9±0.5	2.3±0.72
Eosinophils	3.5±0.25	3.8±0.61	2.3±0.54	3.3±0.12
Neutrophils: rod-shaped	5.3±0.12	4.6±0.37	4.8±0.24	5.8±0.91
segmental	20.5±0.29	20.7±0.19	29.3±0.43***	19.4±0.95
Total	25.7±0.40	25.3±0.34	24.1±0.63	25.3±1.81
Lymphocytes	56.6±0.67	57.9±0.67	56.5±0.43	55.8±0.24
Monocytes	11.2±0.94	11.1±0.70	12.9±2.33	13.3±1.72
L / N	2.2±0.06	2.3±0.02	2.3±0.07	2.3±0.29
Displacement of the neutrophil nucleus	0.26±0.002	0.22±0.020	0.28±0.010	0.30±0.030

As a result, the number of red blood cells blood of II and IV group chickens increased by 38.0-50.0% ($P < 0.05$); and the number of segmental leukocytes increased by 41.9% in group III ($P < 0.01$). There is an intensification of erythro- and leukopoiesis enhancing oxidative processes, cellular respiration and the rapid formation of the chicken immune system. Let's analyse the biochemical parameters of the blood (Table 4).

Table 4

Biochemical parameters of chicken blood, M±m, n=4

Indicator	Groups			
	I	II	III	IV
Total lipids content, g / l	4.11±0.367	6.33±0.67	6.17±0.94	5.32±0.16*
Creatinine content, $\mu\text{mol} / \text{l}$	54.9±14.96	23.2±8.56	50.9±5.90	31.8±4.93
Nitrogen, $\mu\text{mol} / \text{l}$	37.3±0.90	42.2±0.57***	41.6±0.95	38.4±0.84
Protein content, g / l	42.8±0.13	50.1±0.9**	47.8±1.8	49.5±1.2**
Protein fractions, %				
albumin	31.2±0.75	33.5±1.73	32.1±0.65	32.6±0.87
α - globulins	18.5±1.55	18.1±0.38	18.6±0.33	17.5±0.39
β - globulins	11.2±0.84	10.9±0.06	11.6±0.35	11.9±0.46
γ - globulins	31.6±8.20	37.4±1.66	37.7±0.59	38.1±1.67
A/D	0.46±0.02	0.51±0.04	0.48±0.01	0.49±0.02
β -lipoproteins content, g / l	0.06±0.007	0.05±0.002	0.12±0.014	0.05±0.002
% to total lipids	1.5±0.22	0.8±0.15*	1.9±0.24	1.0±0.04
Cholesterol content, mmol / l	3.9±0.26	3.6±0.11	3.9±0.31	3.5±0.47
AST activity, mmol / l / h	0.36±0.08	1.19±0.27*	0.93±0.36	0.37±0.07
per 1 kg of live weight	0.37±0.09	1.20±0.28*	0.87±0.33	0.35±0.07
ALT activity, mmol / l / h	0.16±0.20	0.38±0.05***	0.10±0.02	0.23±0.09
per 1 kg of live weight	0.17±0.02	0.38±0.04***	0.09±0.02*	0.22±0.08
Alkaline phosphatase, mmol / l / s	0.44±0.16	0.25±0.10	0.11±0.01	0.28±0.20
per 1 kg of live weight	0.45±0.18	0.25±0.09	0.11±0.01	0.78±0.20
Calcium content, mmol / l	4.4±0.32	4.7±0.10	4.5±0.47	4.1±0.51
Inorganic phosphorus content, mmol / l	3.6±1.05	1.2±0.26	0.7±0.18	1.6±0.20
Glucose content, mmol / l	1.1±0.23	1.1±0.14	1.1±0.14	1.1±0.08

The research results indicate an increase in nitrogen and protein metabolism in chickens consumed the minimum (0.36 ml / kg live weight per day) and maximum (0.9 ml / kg) doses of feed additives. This is evi-

denced by an increase in the amount of residual nitrogen, protein and its individual fractions, as well as an increase in the activity of the main reamination enzymes (AST and ALT). In addition, the introduction of wormwood extract in the diet in the amount of up to 0.9

ml per 1 kg of live weight of chickens per day contributed to an increase in the concentration of total lipids in the blood by 29.4% ($P < 0.05$) and a slight decrease in cholesterol. It can be assumed that the maximum concentration of the experimental feed additive promotes the stimulation of lipid metabolism, which promotes the transformation of fats digested from feed not into cholesterol, but into neutral triglyceride forms.

CONCLUSIONS

1. The wormwood extract use for young chicken feeding of does not delay their growth and does not affect the safety of livestock.

2. The introduction of wormwood extract in the amount of up to 0.9 ml / kg per day in the composition of compound feeds for young animals contributes to the strengthening of erythropoiesis and leukopoiesis.

3. It has been experimentally proved that the inclusion of wormwood extract in the feed from 0.36 to 0.9 ml per kg of live weight per day causes the intensification of nitrogen, protein and lipid metabolism in the body of young chickens.

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HEMATOLOGICAL PARAMETERS OF CHICKENS FED BY CLOVER YELLOW

Abstract.

The article includes research results on the morphological and biochemical blood parameters of the Lohmann Brown breed chickens fed by rations enriched with a new biologically active supplement of yellow clover during the growing period.

Keywords: replacement young, Lohmann brown, erythrocytes, leukocytes, leukocyte formula, biochemical composition of blood, yellow clover.

Feeding chickens by biologically active substances is one of the main tasks of producers. However, in recent years the situation with the poultry provision with highly effective feed additives has deteriorated somewhat due to their high costs. Therefore, there is a need to find non-traditional feed additives that would help improve metabolism and nutrients efficient absorption.

It is known that natural phytocomplexes do not differ from complexes made on the basis of synthetic compounds. However, they are much cheaper. Some scientists recommend the widespread application of eastern purple coneflower in poultry feeding to improve growth and prevent disease. Its use in poultry feeding improves the preservation and increases the egg production of laying hens [3]. Other scientists are for using the biomass of spirulina [4] and chlorella [5]

in poultry feeding, observed an increase in the intensity of growth by 10.7%, a decrease in feed consumption by 11.7%.

The introduction of eleutherococcus extract into the diet increased the survival of livestock by 3.7% and improved the broilers growth by 11.7% [6] increasing the activity of alanine and aminotransferase in their blood [7].

Taking into account the chemical composition, biological and therapeutic properties of yellow clover [8], we propose it use in the diets of Lohmann brown egg chickens.

Research methodology. The research was conducted at the Tulchyn Poultry Farm, Tulchyn District, Vinnytsia Region. The equalization period lasted 15 days, the main one was 105 days. Daily Lohmann brown chickens were selected for the experiment. The four groups were formed on the analogue principle. Feeding patterns for young animals are presented in Table 1.