

THE EFFECT OF ESSENTIAL OIL OF THYME (*THIMUS VULGARIS*) ON TO THE QUALITY OF MEAT AND CARCASSES OF MEAT CHICKEN BROILERS

Lenuța Fotea¹, Doina Leonte¹, Iuliana Țugui²

¹*Animal Sciences Faculty, University of Agricultural Sciences
and Veterinary Medicine, Iasi, Romania
e-mail: fotealenuta@yahoo.com*

²*School of Tourism Iași*

Abstract

Food safety is the desiderate after which the consumers of animal products guides. The specific of this research was to determine the effect of thyme essential oil used in food at different levels on growth performance, slaughter yield, carcasses weight and internal organs, chemical composition and organoleptic qualities of meat chicken. The 200 Ross 308 broiler chicken were used distributed in four lots, E1 (0.1%), E2 (0.3%), E3 (0.7%) and M (without additives). The experiment lasted 42 days. The data obtained were statistically processed. The results showed that supplementation with 0.7 fodder essential oil of thyme determined to obtain the best results on the average body weight, carcass weight, slaughter yield and the most efficient feed conversion to growth rate compared with witness lot ($p < 0.05$). Regarding the weight of internal organs and the chemical composition of meat values were similar. The results of organoleptic observations have shown no influence on color or smell of the meat. The conclusion which detaches is that the use of essential oil thyme 0.7% may be a potential natural growth promoter used for chicken broilers.

Key words: essential oil, promoter, safety, broilers

INTRODUCTION

Current trends and future market for agricultural products is to sell organic products. This was required by consumers who have established a set of values by which orientates regarding nutrition, health and welfare of considering them as a priority and very important. Consumer modern objectives are: food safety (without antibiotics), products with high nutritional value (proteins, fatty acid $\Omega 3$ and $\Omega 6$) and of the environment (3, 11). The use of medicinal plants in animal husbandry was based on their properties to cure and prevent a number of diseases at humans. Due to the left of studies have shown that many plants have beneficial effects on animal body from a very good value of food due to stimulating enzyme secretion, antibacterian effect, immunomodulating, antioxidant, etc.. and that reaching these effects due to real factors antistres respectively to achieve the welfare of the animal (5,6,8,10). Using natural growth promoters to obtain animal products that contain substances free (antibiotics) and

natural products ().If the research has been done towards the use of thyme essential oil used in feed for chickens to determine whether the levels used have positive effect on growth performance, slaughter yield, meat quality and the chemical composition of it (1,2,6, 7,9, 10,12).

MATERIAL AND METHOD

In the experiment they were used 200 day-old chicks of Ross 308. Chicks were reared in a pyramid Battery BP4 in cuști. The birds were divided into four treatment groups of 50 birds each: M (without additives) E1 (0.1%), E2 (0.5%) E3 (0.7%). The experimental period was 42 days. A established a regime of light 24 hours a day throughout the experimental period. Food and water were administered at discretion. Food was made from a specific standard recipe for chicken meat (table 1) on three separate periods: starting, growing and growing+finishing, which was built by homogenization essential oil that has

previously been dissolved in vegetable oil. Was prepared daily amount of food for each batch separately. The data obtained were statistically processed (the ANOVA). Weighings were made for each period of growth: 0, 14, 28 and 42 days. Was done to establish and increase growth and feed conversion in the calculation of daily live weight (0-42 day). After the experiment ended 10 chicks per lot were slaughtered to

determine the slaughter yield, the weight of the carcasses and internal organs. Evidence of breast muscles and thigh muscles were taken and subjected to chemical analysis to determine the chemical composition of meat. Were monitored daily the health and viability of their chickens. Chicks were reared in conditions of maximum security and have not been vaccinated.

Table 1
 Structure and nutritional composition of standard diets

Feed ingredients	UM	0-14 day	15-28 day	29-42 day
Corn	%	61.00	65.00	65.00
Soybean meal	%	28.00	23.00	23.00
Full-fat soybean	%	2.00	4.00	7.00
San flowers	%	1	-	-
Gluten de porumb	%	1.00	1.00	-
Fish meal	%	400	3.50	-
Vegetable oil	%	-	0.50	1.50
L-Lysine	%	0.05	0.10	0.05
DL- methionine	%	0.20	0.20	0.20
Carbonat de calciu	%	0.45	0.45	0.75
Dicalcium phosphate	%	1.10	1.00	1.15
Salt	%	0.15	0.20	0.30
Vitamin and minerals premix	%	1.00	1.00	1.00
Kemzyme VP dry	%	0.05	0.05	0.05
Total	%	100	100	100
Analysis				
kcal /kg		2995	3100	3153
Crude protein	%	23	20	18
Crude fiber	%	3.25	3.33	3.01
Eter extract	%	4.51	4.01	6.01
Ash	%	6.12	6.05	6.33
Lysine	%	1.36	1.17	1.00
Methionine +Cistine	%	1.00	0.90	0.82
Ca	%	1.03	0.95	0.91
P	%	0.76	0.66	0.61

RESULTS AND DISCUSSION

The results obtained after finishing of the experiment are presented in tab.2. Thyme essential oil was tested to determine the influence of different levels of chicks administered in feed on quality meat. Regarding the average body weight at the end of the experiment the best results compared with the group were recorded in group E3 values recorded were higher by 13% (E3), 7.8% (E2) and 3.4% (E1) compared with M. Converting food to increase growth was very good at all the lots that have received the essential oil being 10.4% (E3), 7.1% (E2) and 6.5% (E1) higher

than in group M (without additives). Average carcass weight was consistent with the average body weight, slaughter yield and had the highest values in group E3. Regarding the average weight of internal organs that was correlated with average body weight. For all recorded values were determined significant differences ($p < 0.05$) between E3 and M. As regards the chemical composition of meat the breast and thigh were made consistent with the results obtained by other researchers (7,9), it and showing that the essential oil did not influence the chemical composition of meat (table 3).Results on quality does not have a strong effect exerted by the essential

oil, but up to the meat samples from E3 for all the observed values were maximum wose qualification with excellent meat table 4.

Table 2

The effects of different level of thyme essential oil on growth performance, carcass yield and internal organs of broiler chickens

Results	M	E1 0.1%	E2 0.3%	E3 0.7%
Final average weight 42 day g	2200	2276	2358	2490
Daily weight gain g/bird/day	51.28a	53.19	55.14	58.26b
FCR g feed/g gain	1.82a	1.72	1.69	1.63
Carcass weight	1562a	1616	1710	1866b
Carcass yield (%)	71a	71	72.51	74.97b
Liver (g)	48.16	48.51	49.23	50.14
Heart (g)	10.91	11.18	11.20	12.28
Pancreas (g)	4.97	4.18	5.10	5.34
Spleen (g)	2.31	2.28	2.39	2.48
Mortality %	3	-	-	-

ab ($p < 0.05$) the values differ significantly

Table 3

Chemical composition of the breast and thigh muscles (%)

Results	M		E1 0.1%		E2 0.3%		E3 0.7%	
	*	**	*	**	*	**	*	**
Water	73.56	71.22	72.96	71.20	73.14	71.14	73.08	71.34
Dry mater	22.44	28.78	27.04	28.84	26.86	28.86	26.92	28.66
Proteins	22.02	19.46	22.86	20.14	22.52	19.64	22.80	19.54
Fat	2.54	8.26	2.62	7.66	7.40	8.08	2.22	8.20
Ash	1.46	1.06	1.49	1.08	1.58	1.14	1.56	1.02

* breast muscles **thigh muscles

Table 4

Chemical composition of the breast and thigh muscles (%)

Results	M	E1 0.1%	E2 0.3%	E3 0.7%
Smell	B	A	A	A
Flavour	B	B	B	A
Color	C	A	A	A
Tender	B	B	A	A

A- excellent, B- very good, C- good,

CONCLUSIONS

Following the results it can be said that the use of thyme essential oil can cause a good growth and development of chicken meat, meat to obtain a high quality and because the essential oil is a natural and safe products for consumers.

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