

Comparison of Garlic (*Allium sativum*), Probiotic and Antibiotic Supplementation as Growth Promoters in Broiler Chickens

Al-Mansory A. A.¹, Sherif B.M.^{2*}, Almansoury M. A.¹

1- Higher Institute of Agricultural Technology, Derna- Libya

2- Faculty of agriculture, University of Tripoli, Tripoli-Libya

Abstract

Unconventional feed additives such as herbs, medicinal and aromatic plants, organic acids, and probiotics have been used as alternatives to antibiotics to enhance growth in poultry and farm animals. This study aimed to evaluate the effects of garlic and probiotics on growth promotion compared to antibiotics. A total of 240 unsexed one-day-old broiler chicks (Ross 308 strain) were used. At two weeks of age, the chicks were randomly assigned to four experimental groups: a control group fed a basal diet, a second group fed a diet containing 0.5% garlic, a third group fed a diet containing 0.5% probiotic (yeast), and a fourth group fed a diet supplemented with 50 ppm of the antibiotic enrofloxacin. The evaluated parameters included feed intake, feed conversion ratio, final body weight, body weight gain, absolute and relative carcass weight, breast, and thigh, and the amount of blood loss. Additionally, the weight and length of selected internal organs were measured. Overall, the results indicated that the productive performance traits, carcass weight and its components, and internal organ measurements of birds fed diets containing garlic, probiotics, or antibiotics showed no significant differences ($p \geq 0.05$) compared to the control group. Exceptions included the superiority of the control group over the other groups in terms of the absolute weight of the carcass and its cuts, also a significant decrease in weight gain in the garlic group (1728.15 g vs 1873 g in the control group), a reduction in feed intake in the probiotic group (2695.33 g vs 2725.33 g in the control group), and decreased liver weight and increased spleen weight in the antibiotic group (35.51 g and 3.93 g). It is concluded that under the conditions of this study, the inclusion of garlic, probiotics, or antibiotics at the tested levels did not exert a growth-promoting effect in broiler chickens.

Keywords: Broiler chickens, garlic, probiotics, antibiotics, productive performance, carcass traits.

Introduction

The poultry industry is a vital sector of agriculture focused on raising birds such as chickens, turkeys, and quails for meat and eggs. It is a significant contributor to the global food supply and economy. Modern poultry farming practices

aim to improve efficiency, animal welfare, and sustainability. Challenges in the industry include disease management, environmental impact, and maintaining food safety standards that guarantee sustainability and food security. Feed

Corresponding Author: Sherif B.M., Department of Anim. Prod., Faculty of Agriculture, University of Tripoli, Libya.

Phone: +218 921527042

Email: B.Sherif@uot.edu.ly

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additives in poultry feed play a crucial role in promoting sustainability, which includes improving feed efficiency and promoting overall animal welfare and health (Pandey *et al.*, 2019), as well, reducing the environmental pollution caused by poultry farms, and contributing to lower greenhouse gas emissions (Arsenos and Vouraki, 2023). Furthermore, chicken feed additives are essential for enhancing food security, which comprises meeting the growing global demand for poultry meat and eggs (Aminullah *et al.*, 2025), reducing production costs (Pandey *et al.*, 2019), and ensuring the quality of poultry products as well as safer food for consumers (Seidavi *et al.*, 2023). Scientific research has shifted to the use of non-traditional feed additives as alternatives since the approval of the restriction on the use of antibiotics as growth promoters in poultry feed. These include organic acids, spices, aromatic herbs, probiotics, prebiotics, and more. Around the world, antibiotics are used extensively in a variety of ways for both preventative and therapeutic objectives (Guetiya Wadoum *et al.*, 2016). Nonetheless, their application in feed efficiency and growth promotion is growing daily (Singh *et al.*, 2014). Garlic (*Allium sativum*) is used as a spice and has antiviral, antibacterial, antifungal, antioxidant, and antiparasitic properties (Hanieh *et al.*, 2010) and is considered a growth promoter (Safi *et al.*, 2014). Probiotics are live microbial food supplements that can benefit poultry in terms of preventing the growth and spread of pathogenic bacteria by lowering the intestinal pH

or competing for adhesion sites on the intestinal epithelium (Chichlowski *et al.*, 2007). Probiotics have many potential benefits when used in poultry nutrition, such as improving intestinal nutrient digestibility (Samarasinghe *et al.*, 2004), promoting intestinal health (Fu *et al.*, 2019), and being growth promoters (Perricone *et al.*, 2022). The efficacy of these feed additives was the subject of conflicting research, with some studies showing beneficial outcomes and others showing negative ones. The current study aimed to compare supplemented garlic, yeast, and antibiotics in broiler feed as growth promoters by measuring productive performance, carcass traits, and some internal organs.

Materials and Methods

A total of 240 (Ross 308) one day old chicks with an average weight of 40 g were used at the Poultry Experimental House, Department of Veterinary Medical Sciences Technology, Higher Institute of Agricultural Technology, Derna. The birds were reared in the floor system, and divided into 16 pens, each measuring 2x1.5 m². At the age of two weeks, the birds were randomly divided into four equal groups (60 birds/each), and each group contained four replicates (15 birds/replicate). The first group was fed a basal diet (control group); the second group was fed a basal diet that was supplemented with garlic powder (0.5%); the third group was fed a basal diet that was supplemented with probiotics (baker's yeast) (0.5%); and the fourth group was fed a basal diet and antibiotic (Enrofloxacin) (50 ppm) administered in drinking water by

dissolving 50 mg of the antibiotic in a liter of distilled water.. Feed and water were available ad-lib throughout the experimental period that lasted for four weeks (six-week-old), and the chemical analysis of the basal diet was given in Table (1). All birds were maintained under a standard photoperiod (23h light+1h dark), with continuous ventilation and an ambient temperature of 33° C in the first week and gradually decreased to 22° C in the 5th and 6th week.

Measured traits

Performance

Body weight gain and feed intake were recorded weekly during the experiment period. Feed conversion ratio (FCR) was calculated weekly as the ratio between feed intake and body weight gain. Final body weight recorded at the end of the sixth week.

Caracas traits

By the end of the 6th week, 20 birds were randomly selected from each group. The birds were fasted for 12 hours. After the fasting period, their body weights were recorded, and the birds were slaughtered and weighed to measure bleeding volume (as weight). The birds were de-feathered, weighed, and eviscerated, and then the weights of the eviscerated hot carcasses were measured. The carcass cuts, including thighs, and breasts, were weighed. Hot carcass weight, carcass cuts weight, and bleeding volume were expressed as a percentage of the live weight. Digestive system weight was recorded, and the weights of the internal organs, including the liver,

spleen, gizzard, heart, crop, and stomach, and intestine weight and length were recorded. Relative organs weight was calculated as a percentage of live weight.

Statistical analysis

This study was conducted using a completely randomized design (CRD). Data were statistically analyzed using one-way analysis of variance (ANOVA). Significant differences were determined using Duncan's Multiple Range Test (1955) and significance was considered at ($p \leq 0.05$). All analyses were performed using SPSS software (version 16) (Chicago, IL, USA). The results are presented as the mean \pm standard error (SE).

Results and discussion

The impact on the performance

Table (2) shows the effect of treatments on the productive performance of broilers. In general, the results indicated that the addition of garlic, probiotics, and antibiotics at rates of 0.5%, 0.5%, and 50 ppm, respectively, in broiler feed did not have a significant effect on the productive performance parameters compared to the control group, however the birds fed garlic at a rate of 0.5%, had significantly higher feed consumption ($p \leq 0.05$), with an average of 2765 grams versus to 2725.33 grams and 2695.33 grams for the birds in the control group and birds fed probiotics at a rate of 0.5% respectively.

Table (1) Ingredient and chemical composition of the experimental basal diet.

Component	Percentage (%)
Corn (8.5%)	57.20
Soybean meal (44%)	37.85
Sunflower oil	1.30
Di Calcium phosphate	0.60
Limestone	2.30
Salt (Sodium chloride)	0.30
L-lysine	0.02
Di-methionine	0.13
Premix ¹ (vitamins and minerals)	0.30
Total	100
Analyzed chemical composition ²	
Moisture	9.11
Crude Protein	21.51
Crude Fat	4.80
Ash	5.80
Crude Fiber	2.58
Nitrogen-Free Extract	56.20
Metabolizable energy (kcal/kg)	2985

¹premix (vitamins and minerals). Each 1 kg consists of: vitamin A, 3,600,000 U; vitamin D3, 800,000 U; vitamin E, 7200 U; vitamin K3, 800 mg; thiamine, 720 mg; riboflavin, 2640 mg; calcium pantothenate, 4000 mg; niacin, 12,000 mg; pyridoxine, 1200 mg; folic acid, 400 mg; vitamin B12, 6 mg; biotin, 40 mg; choline, 100,000 mg. #Contents per kilogram: Mn, 39680 mg; Fe, 20000 mg; Zn, 33880 mg; Cu, 4000mg; I, 400 mg; Se, 80 mg.

²Calculated according to NRC (1994).

On the other hand, there were no significant differences in feed consumption between the second group (0.5% garlic) and the fourth group (50 ppm), or between the control group and the third group (0.5% probiotics) and the fourth group (50 ppm). It was also noted that the birds supplemented with probiotics recorded the lowest daily and total weight gain among all experimental groups, with a significant decrease ($p \leq 0.05$) compared to the control group. The average daily weight gain for the third group was

61.71 grams, compared to 66.89 grams for the control group and the average of total weight gains for the third group was 1,728.15 grams, compared to 1,873 grams for the control group. The results of this study were consistent with the findings of Raeesi *et al.* (2010) who indicated that feeding broiler chickens diets containing 0.5% garlic did not significantly affect weight gain, and feed conversion ratio. Along the same line, Patel *et al.* (2014) concluded that supplementing the diet with 0.5% garlic for

broilers did not affect final weight, total and daily weight gain. Also, Taufik and Maruddin (2019), who found that adding garlic to broilers' feed had no significant effect on final body weight or feed conversion ratio. Additionally, Sangilimadan *et al.*, (2019) reported that including garlic in the feed of broiler chickens did not show any significant differences in productive traits. In agreement with the findings of this study, several studies have reported that yeast products did not affect the performance of turkey poults (Özsoy and Yalçın, 2011) or broilers (Aristides *et al.*, 2018). More recent studies reported that feeding broilers a yeast-supplemented diet did not affect final body weight, feed consumption, feed conversion ratio, or mortality rate (Lin *et al.*, 2023). According to earlier research, body weight and feed conversion ratio were unaffected significantly by the addition of different kinds of antibiotics at various concentrations to broiler

feed (Chen *et al.*, 2013; Sarker *et al.*, 2017). Similarly, Naser *et al.* (2017) reported that adding antibiotics to feed or drinking water had no significant effects on final body weight, weight gain, feed intake and feed conversion ratio. Likewise, supplementation with antibiotic (Maxus) in broiler feed did not significantly affect performance parameters (Hussein *et al.*, 2020). Likewise, Abbas *et al.* (2024) reported that feeding broilers a mixture of antibiotics did not show significant differences in final body weight. Also, using Virginiamycin in broiler feed showed no significant changes in final body weight or weight gain of broilers (Ranjan *et al.*, 2023). Moreover, Selim *et al.*, (2024) indicated that the use of antibiotics in broiler feeding did not significantly affect the feed conversion ratio or feed consumption, even though body weight increased significantly.

Table (2) The effect of experimental treatments on the productive performance of broiler chickens ($\bar{x} \pm SE$).

Traits	Experimental Treatments			
	Control	Garlic 0.5%	Probiotic 0.5%	Antibiotic 50 ppm
Initial BW (g)	502.77 ± 7.94	514.20 ± 8.87	514.20 ± 5.46	514.20 ± 6.12
Final BW (g)	2375.79 ± 47.68	2326.88 ± 38.32	2242.34 ± 32.90	2332.57 ± 45.07
DWG (g)	66.89 ^a ± 1.69	64.73 ^{ab} ± 1.35	61.71 ^b ± 1.20	64.94 ^{ab} ± 1.64
TWG (g)	1873.00 ^a ± 47.40	1812.68 ^{ab} ± 37.83	1728.15 ^b ± 33.68	1818.37 ^{ab} ± 46.00
FC (g)	2725.33 ^{bc} ± 11.00	2765.00 ^a ± 10.28	2695.33 ^c ± 9.83	2742.33 ^{ab} ± 17.02
FCR	1.45 ± 0.039	1.52 ± 0.036	1.55 ± 0.031	1.50 ± 0.045

a–c means within the same rows without the same superscript letter are significantly different ($p \leq 0.05$). BW=body weight, DWG= daily weight gain, TWG= total weight gain, FC=feed consumption, FCR=feed conversion ratio.

In Contrast, other studies did not fully or partially agree with the finding of this study. Only the final body weight and weight gain significantly

improved when garlic was added at varying concentrations of 0.5 or 1% (Karangiya *et al.*, 2016; Patel *et al.*, 2017; Makwana *et al.*, 2019).

While, AL Massad *et al.*, (2018) noted that adding garlic supplements significantly increased final weight. Furthermore, different studies have shown that adding, probiotics (yeast) to broiler feed led to significant enhancements in body weight and feed conversion ratio (Swain *et al.*, 2007; Gao *et al.*, 2008). Similarly, Patel *et al.*, (2015) found that body weight gain and feed conversion ratio were significantly enhanced by adding probiotic (Protexin) to broiler diets. Moreover, adding beneficial bacteria to broilers' diets improves final body weight, feed consumption, and feed conversion ratio (Hatab *et al.*, 2016), and this reveals that the yeast could be considered as a safe and effective feed additive that improves broiler performance (Sun *et al.*, 2019; Hussein *et al.*, 2020). As well, other research revealed that adding Virginiamycin to broiler diets dramatically increased final body weight and weight gain (Miles *et al.*, 2006). Likewise, it was found that broilers fed a diet supplemented with antibiotics tended to improve productive performance (da Costa *et al.*, 2011; El Tazi, 2014).

In a related study, Pereira da Costa *et al.*, (2016) utilized the correlation between phenotypic and molecular variations in the second generation F2 of tomato to identify supplementary markers for certain fruit traits. The primer OPA07 exhibited four bands characterized by varying molecular weights. Among these, two bands were observed to be monomorphic, measuring 340 base pairs and 240 base pairs, respectively.

The impact on the carcass traits and the internal organs

Table (3) presents the results of the effect of adding garlic, probiotics, and antibiotics to broiler feed on carcass weight and carcass cuts weight and their percentage. The birds in the control group significantly outperformed ($p \leq 0.05$) those in the second, third, and fourth groups in the following traits: Live body weight, with an average of 2375 g compared to 2258 g, 2120 g, and 2231 g, respectively; hot carcass weight, averaging 1967 g versus 1852 g, 1710 g, and 1837 g, respectively; and thigh muscle weight, with a mean of 740 g compared to 666 g, 645 g, and 660 g, respectively. Additionally, the results indicated that the control group birds had a higher breast ($p \leq 0.05$) muscle weight than those in the third group (680 g vs. 576.25 g). Likewise, the control group also showed a statistically significant advantage ($p \leq 0.05$) in average bleeding weight, recording 87.5 g compared to 67.5 g and 61.25 g in the second group (0.5% garlic) and third group (0.5% probiotic), respectively. No significant differences were observed between the control group and the fourth group (50 ppm). On the other hand, the relative weights of carcass traits including carcass weight, thigh muscle weight, and breast muscle weight did not show any statistically significant differences ($p \geq 0.05$) between the control group and the experimental groups fed diets supplemented with garlic, probiotics, or antibiotics. However, regarding the percentage of bleeding weight, birds in the fourth group (50

ppm antibiotic) recorded the highest value (3.8%), followed by the control group (3.68%), the second group (0.5% garlic) at 2.98%, and the third group (0.5% probiotic) at 2.89%. The

Table (3) The effect of experimental treatments on the carcass weight and carcass traits of broiler chickens ($\bar{x} \pm SE$).

reduction observed in the third group was statistically significant ($p \leq 0.05$) compared to both the fourth and control groups.

Characteristics	Experimental Treatments			
	Control	Garlic 0.5%	Probiotic 0.5%	Antibiotic 50 ppm
LBW (g)	2375 ^a ± 35.76	2258 ^b ± 20.95	2120 ^c ± 11.72	2231 ^b ± 11.61
Hot CW (g)	1967 ^a ± 45.24	1852 ^b ± 25.73	1710 ^c ± 5.08	1837 ^b ± 10.65
TMW (g)	740 ^a ± 24.57	666 ^b ± 17.95	645 ^b ± 9.78	660 ^b ± 17.07
BMW (g)	680 ^a ± 14.28	620 ^{ab} ± 37.58	576.25 ^b ± 10.87	647.50 ^{ab} ± 20.25
BW (g)	87.50 ^a ± 5.95	67.50 ^b ± 4.33	61.25 ^b ± 5.15	85.00 ^a ± 6.12
CW (%)	82.83 ± 1.43	82.01 ± 0.14	80.67 ± 1.30	82.37 ± 0.34
TMW (%)	31.16 ± 0.99	29.51 ± 0.87	30.42 ± 0.53	29.57 ± 0.70
BMW (%)	28.66 ± 0.88	27.40 ± 1.34	27.18 ± 0.49	29.01 ± 0.82
BW (%)	3.68 ^{ab} ± 0.26	2.98 ^{bc} ± 0.17	2.89 ^c ± 0.24	3.80 ^a ± 0.26

a–c means within the same rows without the same superscript letter are significantly different ($p \leq 0.05$). LBW=live body weight, CW=carcass weight, TMW=thigh muscle weight, BMW=breast muscle weight, BW=bleeding weight.

Table (4) presents the results regarding the impact of the experimental diets on selected internal organs of broiler chickens during the rearing period from 14 to 42 days of age. The findings indicate that the dietary supplements used in this study did not exert a statistically significant effect on the internal organs evaluated, which included the weight of the gastrointestinal tract, liver, spleen, heart, gizzard, crop, stomach, and both the weight and length of the intestines. However, a significant decrease ($p \leq 0.05$) in liver weight was observed in birds from group 4, which were fed a diet containing 50 ppm

antibiotics. The average liver weight in this group was 35.51 grams, compared to 43.43 grams and 46.49 grams in the control group and group 2, respectively. Additionally, a significant increase ($p \leq 0.05$) in spleen weight was recorded in group 4, with an average weight of 3.932 grams. This was notably higher than the average spleen weights in the control group (3.035 grams), group 2 (2.710 grams), and group 3 (2.785 grams).

The results in Table 4 showed that birds in the control group had higher live weights than those in the other experimental groups, resulting in a

significant advantage in both carcass weight and its parts. However, no significant differences were observed in the relative weights of the carcass and cuts, suggesting that the higher live weight in the control group was the primary factor behind the observed superiority in absolute values, rather than a true improvement in carcass traits. Many studies agreed with our findings on carcass traits. Fadlalla *et al.*, (2010)

indicated that adding garlic powder at different concentrations to the feed did not significantly affect the relative cold and hot carcass weights. It was also found that supplementing the diet with 0.5% garlic for broilers did not affect the relative weights of the carcass, heart, liver, gizzard, spleen, intestine length, and cecum (Patel *et al.*, 2017; Sangilimadan *et al.*, 2019; Khaidem *et al.*, (2019); Makwana *et al.*, 2019).

Table (4) The effect of experimental treatments on some internal organs of broiler chickens ($\bar{x} \pm \text{SE}$).

Traits	Experimental Treatments			
	Control	Garlic 0.5%	Probiotic 0.5%	Antibiotic 50 ppm
DSW (g)	198.60 \pm 5.55	212.86 \pm 1.76	233 \pm 23.62	204 \pm 5.72
LW (g)	43.43 ^a \pm 2.25	46.49 ^a \pm 1.79	42.29 ^{ab} \pm 1.36	35.51 ^b \pm 3.17
SW (g)	3.03 ^b \pm 0.22	2.71 ^b \pm 0.04	2.78 ^b \pm 0.24	3.93 ^a \pm 0.37
HW (g)	11.39 \pm 0.70	11.70 \pm 1.04	11.78 \pm 0.88	10.95 \pm 1.37
GW (g)	43.08 \pm 1.69	41.78 \pm 3.86	44.39 \pm 7.16	42.02 \pm 2.42
CW (g)	9.75 \pm 1.75	11.98 \pm 1.71	10.47 \pm 1.16	8.55 \pm 2.18
SW (g)	41.48 \pm 2.04	42.07 \pm 5.70	42.92 \pm 5.28	40.46 \pm 2.33
IW (g)	94.59 \pm 6.47	103.49 \pm 4.66	93.94 \pm 6.71	92.62 \pm 3.32
IL (cm)	213 \pm 9.86	217 \pm 7.50	222 \pm 14.36	210 \pm 13.54

a–b means within the same rows without the same superscript letter are significantly different ($p \leq 0.05$). DSW=digestive system weight, LW=liver weight, SW=spleen weight, HW=Heart weight, GW=gizzard weight, CW=crop weight, SW=stomach weight, IW=intestine weight, IL=intestine length.

Contrary to results of the current study, others reported that feeding broilers on garlic significantly increased carcass weight and some carcass cuts (Raeesi *et al.*, 2010; Brzóska *et al.*, 2015; AL-Massad *et al.*, 2018). According to a study by Puvača *et al.*, (2019), the relative weights of the gizzard and carcass significantly decreased when 0.5% and 1% of garlic supplements were added to broiler diets. The

variability in broiler chicken supplementation outcomes complicates determining garlic's efficacy as a growth promoter. However, if birds are subjected to strict hygienic and biosecurity practices, these beneficial effects may not be noted. Furthermore, the content of bioactive compounds in herb plants can vary depending on maturity, storage conditions, climate, and geographic location (Onibi *et al.*, 2009). The

pharmacological properties of garlic vary depending on how the bulbs are processed (Kasuga *et al.*, 2001).

Regarding the effect of probiotics on carcass traits and internal organs, the results have varied, Shulukh *et al.*, (2017) found that supplementing broiler feed with probiotics had no significant effect on carcass traits and blood loss weight. Likewise, Abu Sleib *et al.*, (2021) found that feeding broilers different levels of probiotics (Biogen) showed no significant differences in carcass traits. Furthermore, feeding broilers a diet supplemented with two types of yeast (active and inactive) showed that two forms of yeast did not affect carcass weight or relative carcass weight at the 0.2% level (Çalışlar & Kanat, 2021). Additionally, Hussein *et al.*, (2020) reported that broilers fed a probiotic-supplemented diet showed no effect on the length or weight of the small intestine. Similar finding was observed by Lin *et al.*, (2023) who stated that feeding broilers a yeast-supplemented diet had no significant effect on the relative weights of small intestine parts. On the other hand, administering diets supplemented with beneficial bacteria such as *Bacillus subtilis* and *Enterococcus* to broiler chickens resulted in notable changes in the relative weights of the carcass and various internal organs as well as in the length of the small intestine (Hatab *et al.*, 2016). A study on Japanese quail investigated the addition of two types of probiotics (yogurt and Protexin) in drinking water indicated a significant increase in carcass traits (Hossain and Momu, 2022). Under optimal conditions, the antimicrobial properties

of probiotics exert minimal influence on gastrointestinal immune-inflammatory responses and nutrient digestibility, resulting in negligible performance gains (Gaskins *et al.*, 2002). So, it is well established that maintaining animals in optimal environments free of pathogens, antimicrobials, and gut modifying agents including probiotics does not lead to improved growth performance (Dibner and Richards, 2005). Also, Patel *et al.*, (2015) reported that to enhance the efficacy of probiotics, it is essential to select highly effective strains, employ genetic modifications, utilize multi-strain combinations, and integrate probiotics with synergistic components. Among these strategies, multi-strain formulations are particularly promising, as they foster the proliferation of beneficial gut microbiota that competitively inhibit pathogenic organisms, thereby supporting host health (Lukic *et al.*, 2017).

Previous research has yielded contrary results regarding the use of antibiotics as growth promoters in broilers, with some findings supporting our results and others diverging. El Tazi (2014) reported that supplementing broiler diets with neomycin sulfate significantly increased the relative weight of carcass, as well as other carcass traits, and gizzard weights remained unaffected. In contrast, Naser *et al.* (2017) found that administering antibiotics via feed and drinking water had no significant impact on carcass traits. Additionally, Abbas *et al.* (2024) demonstrated that providing a mixture of antibiotics in drinking water did not significantly

affect liver and spleen weights or small intestine length, though intestine weight was reduced. Likewise, Selim *et al.*, (2024) reported that supplementing broiler feed with Avilamycin had no significant effect on carcass traits. As previously noted, discrepancies in study outcomes are to be expected and may stem from a range of influencing factors. These include the age, type, and breed of the birds; the specific antibiotic used, its dosage, and timing of administration; the delivery method—whether incorporated into feed or water—as well as the overall hygiene conditions of the farm, all of which can affect the antibiotic's efficacy. Notably, in-feed antibiotics have been shown to improve performance in poultry production approximately 70% of the time, although no beneficial effects are observed in nearly one-third of cases (Wolfenden *et al.*, 2011).

Conclusion

Based on the findings of the current study, it can be concluded that feeding broiler chickens a diet supplemented with garlic, probiotics, or antibiotics had no significant effects on productive performance, carcass characteristics, and internal organs. Consequently, these supplements, at the specified inclusion rates and under the breeding conditions applied in this study, did not induce any growth-promoting effects in broiler chickens.

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مقارنة مكملات الثوم والبروبيوتيك والمضادات الحيوية كمحفزات للنمو في دجاج اللحم

أحمد عطية المنصوري¹، بشير محمد الشريف²، محمد عبد الحميد المنصوري¹

1. المعهد العالي للتكنولوجيا الزراعية، درنة - ليبيا

2. كلية الزراعة، جامعة طرابلس، طرابلس - ليبيا

المستخلص

استُخدمت الإضافات العلفية غير التقليدية كالأعشاب والنباتات الطبية والعطرية والأحماض العضوية والبروبيوتيك كبديل للمضادات الحيوية لتحسين النمو في الدواجن وحيوانات المزرعة. هدفت هذه الدراسة إلى تقييم تأثير الثوم والبروبيوتيك في تعزيز النمو مقارنةً بالمضادات الحيوية. استخدم عدد 240 كتكوتاً غير مُجنس من دجاج اللحم بعمر يوم واحد من سلالة (Ross 308) عند عمر أسبوعين تم تقسيم الكتاكيت إلى أربع مجموعات تجريبية: مجموعة الشاهد التي غذيت على العليقة الأساسية، والمجموعة التجريبية الثانية التي غذيت على عليقة تحتوي 0.5% ثوم، والمجموعة التجريبية الثالثة التي غذيت على عليقة تحتوي 0.5% بروبيوتيك (الخميرة)، والمجموعة التجريبية الرابعة التي غذيت على عليقة تحتوي 50 ppm من المضاد الحيوي (enrofloxacin). شملت الصفات المدروسة كلاً من معدل استهلاك العلف، ومعامل التحويل الغذائي، ووزن الجسم النهائي، والزيادة الوزنية للجسم، والوزن المطلق والنسبي للذبيحة، ووزن الصدر والفخذ، وكمية الدم المفقودة. كما تم قياس وزن وطول بعض الأعضاء الداخلية. بشكل عام تشير النتائج إلى أن صفات الأداء الإنتاجي ووزن الذبيحة وأجزائها والأعضاء الداخلية للطيور التي تغذت على علائق تحتوي على الثوم أو البروبيوتيك أو المضاد الحيوية لم تظهر أي فروق معنوية ($p \geq 0.05$) مقارنة بطيور مجموعة الشاهد. نستخلص أن إضافة الثوم والبروبيوتيك والمضاد الحيوي بالمعدلات المستخدمة وتحت ظروف التربية لهذه الدراسة لم يكن لها تأثير محفز للنمو في دجاج اللحم.

الكلمات الدالة: دجاج اللحم، الثوم، المعززات الحيوية، المضادات الحيوية، الأداء الإنتاجي، الذبيحة.