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THE ROLE OF OPTIFEED®, VÊO® PREMIUM, AND OLEOBIOTEC® IN DIETS FOR IMPROVEMENT OF THE PRODUCTION PERFORMANCE OF MALE BROILERS IN HEAT STRESS

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Abstract: The present study was conducted to investigate the effect of adding various levels of Optifeed®, VêO® premium and Oleobiotec® to the diets as appetite stimulants in the production Performance of broiler males under heat stress conditions. The experiment was done for 42 days for the period from 30 August 2018 to 11 of October 2018 at the Poultry Research Station of the Livestock Research Department / Agricultural Research Department / Ministry of Agriculture (Baghdad - Abu Ghraib). In this study, 270 - one-day broiler males (Ross 308) were reared with the mean body weight of 37 g/chick, distributed randomly on 18 pens with dimensions of 2 x 3 m (length x width). The experimental treatments involved six treatments with three replicates for each treatment (per replicate 15 chicks). The treatments were included T1: basal diet as a control with no additions, T2: basal diet + 500 g/ton of Optifeed®, T3: basal diet + 250 g/ton of VêO® premi-um, T4: basal diet + 250 g/ton of Oleobiotec®, T5: basal diet + 250 g of Optifeed® + 125 g of VêO® premium + 125 g of oleobiotec® /ton of feed, T6: basal diet + 500 g Optifeed® + 250 g VêO® premium + 250 g Oleobiotec® g/ton of feed. The obtained results showed that the supplemented treatments significantly ($p \leq 0.05$) increased the performance characteristics Cumulative (1-42) day, especially the fifth treatment T5 compared with the control treatment, in both live body weight, body weight gain, relative growth rate, feed consumption, The cumulative feed ratio, the production index, and the economic index.

Keywords: Optifeed®, Vêo® Premium, Oleobiotec ®; Body Weight, Weight Gain and Feed Consumption.

1. Introduction

One of the main problems caused by the high temperature of the broiler environment is reduced feed intake. This leads to a lack of essen-tial nutrients. Consequently, this weakens the growth and low productivity of the broiler. Stress also causes poor immunity. Continuous stress may lead to loss [1] High temperatures can also increase the bird's breathing rate, causing large amounts of oxy-gen to enter, which may generate free radicals that cause oxidative damage to cells through the occurrence of lipid peroxidation and thus oxidative damage to protein and DNA [2], [3].

Structures Refrigeration in the fields of poultry raising to reduce the high temperatures during the summer lead to an increase in the cost of production and the use of antibiotics, medicines, sedatives, sedatives and antifreeze was found through many studies that have a negative impact on consumer health as it accumulates in poultry products and high prices [4], Three products

or feed additives have been recently produced these Optifeed® consists of a mixture of plant extracts of thyme, licorice, gum arabic, turmeric, cinnamon, peppers, alkaloids and soaps, as well as vitamin E and natural flavoring agents. VêO®premium consists of orange, lemon, salicylic acid, vitamin E and natural flavoring products. The third product is Oleobiotec®, which consists of three essential oils: marjoram oil, thyme oil, cinnamon oil and three spices of ginger, turmeric and pepper, as well as BHT as an antioxidant. The purpose of these products is to stimulate appetite to increase feed con-sumption by birds, Enhancing immunity and antioxidants These additives are based on their ability to stimulate the center of appetite in the brain through the axes of smell and taste and inhibit the center of stress because it has a distinctive smell and taste [5]. This study aimed to evaluate the effect of adding different levels of Optifeed®, VêO® premium and Oleobiotec® to the diets as appetite stimu-lant on the production performance of broiler males under heat stress conditions.

2. Materials and Methods

The study was carried out at the Poultry Research Station of the Livestock Research Department / Agricultural Research Department / Ministry of Agriculture (Baghdad - Abu Ghraib). The trial period was 42 days for the period from 30 of August 2018 to 11 of October 2018. 270 -one-day broiler male (Ross 308) were reared with mean body weight of 37 g/chick. The experimental experiments included 6 treatments each treatment 3 replicates, 15 bird per replicate distributed randomly to the replicates. The broiler was raised in a semi-enclosed hall where the hall was divided into 18 Pen dimensions (2 × 3 m length x width). The heating system was based on the natural heat pro-vided for the length of the trial period, which was at a rate of (35 ± 2) C° during the experiment period without using incubators or desert cooling. The temperature and humidity were recorded every 4 hours (10 am, 2 pm, 6pm, and 10 pm) of each day. The temperature and humidity recorded by the 4 mercury thermometers and 2 electronic thermometers. The continuous lighting system was used for the first seven days of life and on the eighth day of life was reduced to 20 hours /day with a break of two hours every 12 hours and up to 3 days before the end of the experiment. The continuous light system was returned (24 hours light) during the experiment, the chicks were fed on protein and energy-balanced diets. Experiment treatments were as follows: - First treatment (T1) basal diet with no additives, basal diet + 500 g/ton of Optifeed®, basal diet + 250 g/ton of VêO® premium, basal diet 250 g/ton of Oleobiotec®, basal diet + 250 g/ton of Optifeed® + 125 g of VêO® premium + 125 g of Oleobiotec® /ton of feed and basal diet + Add 500 g Optifeed® + 250 g VêO® premium + 250 g Oleobiotec® /ton for treatments T1, T2, T3, T4, T5 and T6 respectively.

Table 1. Composition and calculated nutrient content of the experimental diets (%).

Ingredients	Diets Types		
	Starter (1-10 day)	Grower (11-22 day)	Finisher (23-42 day)
Yellow corn	47.5	50.85	54.84
Wheat	10	10	10
soybean meal*	32	28	24
Proteins concentration **	5	5	5
Hydrogenated plant fat	3	4.15	4.3
Calcium diphosphate	0.7	0.5	0.4
Salt NaCl	0.1	0.1	0.1
Limestone	1.2	1.14	1.1
Methionine	0.25	0.13	0.13
Lysine	0.25	0.13	0.13
Total	**100**	**100**	100
Calculated nutrient content NRC [6]			
Metabolism Energy (kcal / kg	3059	3177	3277
Crude protein (%)	22.5	20.9	19.3
Crude Fibers (%)	3.5	3.4	3.2
Lysine%	1.38	1.19	1.09
Methionine + cysteine %	1.08	0.92	0.88
Calcium %	1.02	0.95	0.9
Available phosphorus%	0.45	0.41	0.38

* Soybean meal used from Argentine Origin Crude protein content 48% and 2440 kcal / kg represented energy. ** Proteins used in the production of Dutch Holland (imported) Wafi containing 40% crude protein, 2107 kcal / kg represented energy, 5% raw fat, 2.20% raw fiber, 4.20% calcium, 2.65% phosphorus, 3.85 Lysine, 3.70% methionine, 4.12% methionine + cysteine. It contains a mixture of rare vitamins and minerals that satisfy the bird's needs from these elements.

All the feed additives used and added to the diet as appetizers are produced by Phodé, a French company specializing in animal nutrition, obtained through the Feed Erbil-Iraq Feed Industry, which included Optifyed®, VêO® premium and Oleobiotec®. The productivity traits of the meat breeder males were measured by the final body weight and the cumulative weight gain as mentioned by [7] and cumulative relative growth rate According to what he said Gondwe and Wollny, the cumulative feed consumption and the cumulative feed ratio coefficient ac-cording to equation [8] and the production index and the economic index by applying the formula cited by [7].

3. Results and Discussion

Table 2. shows significant differences (P<0.05) in all cumulative performance characteristics from (1-42) days between the experimental treatments. All the addition coefficients were significant, especially the fifth treatment (T5), which included the addition of Optifeed® 250 g + VêO® premium 125 g + Oleobiotec® 125 g / t feed to the diet compared to the T1 treatment. T5 recorded the highest final body weight of 2826 g and T4, T2, T6 and T3 were recorded (2633, 2476, 2437, 2362) g respectively. The T1 control treatment achieved the lowest final body weight (2267) g in comparison with all the addition coefficients. T4, T2, T6, and T3 showed an increase in weight (2596, 2440, 2400, 2325) g respectively. T1 recorded the lowest cumulative increase in weight (2231) g compared with all the addition transactions. In the cumulative relative growth rate, T5 recorded the highest relative growth rate (194.77) while T1 recorded the lowest relative growth rate of (193.63) compared with all other factors. In terms of cumulative feed consumption, T5 and T4 birds achieved the highest feed consumption rate of 3566 and 3555 g respectively, while T1 and T6 recorded an average feed consumption rate of 3421 and 3415 g respec-tively. (3330) g.

As for T3 birds had a lower rate of consumption of feed during the cumulative period amounted to (3223) g. In terms of cumulative food conversion coefficient, T5 was the most significant improvement (P<0.05) was (1.278) g fed / g weight increase compared to the other factors that recorded a cumulative food conversion factor of 1.365, 1.370, 1.385, 1.423 g / (T2, T4, T3 and T6) respectively, while the control treatment (T1) recorded a deterioration in the cumulative food conversion factor (1.535 g / fed) compared to the other treatments. The results of the statistical analysis in Figure. 1 show the effect of adding different levels of Optifeed®, VêO® premium, and Oleobiotec® to the broiler males in the production index and economic index under stress conditions. (P<0.05) for the addition of the control treatment and the best superiority of T5 achieved (691). For the rest of the additive coefficients have achieved a measure of pro-duction index (601, 567, 535, 532) for T4, T2, T6 and T3 respectively. The control ratio (T1) was the lowest and reached (462). In the economic index, we also observe the same moral superiority (P<0.05) for the above transactions. To the absence of mortality between trans-actions length of study, which amounted to 42 days.

Table 2. Effect of addition of different levels of Optifeed®, VêO® premium and Oleobiotec® to diet males broiler in cumulative production performance (1-42) day, under heat stress conditions.

Traits	Treatments								P- value
	T1	T2	T3	T4	T5	T6	Average Ad.	SEM*	
Body W. g/ bird	2267 e	2476 c	2362 d	2633 b	2826 a	2437c	2500	170	0.0001
Weight G. g/ b	2231 e	2440 c	2325 d	2596 b	2789 a	2400 cd	2436	49.6	0.0001
Relative g. rate	193.6 e	194.1 c	193.8 d	194.4 b	194.7 a	193.9 d	194.14	0.0971	0.0001
feed con. g/ bird	3421 b	3330 bc	3223 c	3555 a	3566 a	3415 b	3418	67.2	0.0003
Feed conversion g bird / g W. G	1.535 a	1.365 b	1.385 b	1.370 b	1.278 c	1.423 b	1.392	0.0374	0.0001

* SEM: Average standard error. a, b, c: The different letters within one row indicate significant differences between the coefficients at a significant level (P≤0.05). (T1): - basal diet (control) (T2): - basal diet with 500 g / t feed Optifeed®.(T3): - basal diet with 250 g / t feed VêO® premium.(T4): - basal diet with 250 g / ton feed Oleobiotec®.(T5): - basal diet with 250 g feed Optifeed® +125 g VêO® premium + 125 g Oleobiotec ® / t feed).T6): - basal diet with 500 g feed Optifeed® +250 g VêO®.

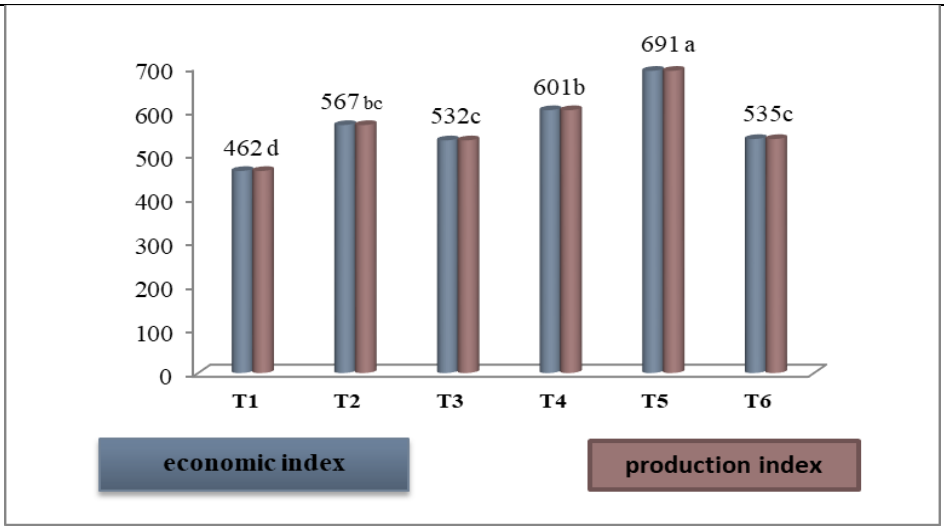

Figure 1. Effect of adding different levels of Optifeed®, VêO® premium and Oleobiotec® to diets males broiler in the production index and economic index under thermal stress conditions.

a, b, c: The different letters within one row indicate significant differences between the coefficients at a significant level (P≤0.05). (T1): - basal diet (control) (T2): - basal diet with 500 g / t feed Optifeed®. (T3): - basal diet with 250 g / t feed VêO® premi-um. (T4): - basal diet with 250 g / ton feed Oleobiotec) ®. (T5): - basal diet with 250 g feed Optifeed® +125 g VêO® premium + 125 g Oleobiotec ® / t feed. (T6): - basal diet with 500 g feed Optifeed® +250 g VêO® premium + 250 g Oleobiotec ® / t feed.

The results of Table (2) and Figure (1) Show significant superiority in all cumulative performance characteristics (1-42) days in favor of the added treatments, especially the fifth treatment (T5), which is added by Optifeed® 250 g + VêO® premium 125 g + Oleobi-otec® 125 g / t feed, compared to the control treatment (T1), which showed significantly lower production performance than the addition treatments. This indicates a cumulative effect of the various active substances involved in the synthesis of all additives used in the experiment containing essential oils and spices And natural and industrial oxidants and antiseptics, all acting as appetite stimulants through a reaction The center of the appetite in the brain through the axes of smell and taste, which encourage the birds to eat feed, which is located on the same axis of the center of stress in the brain, which cannot be stimulated at the same time as the center of appetite [5] and subsequently led to increase the amount of feed consumption that. The results of previous studies indicated that essential oils, plant extracts and spices increase digestive secretions such as saliva, yellow, and mucous secretions. Pancreas and Liver [9], [10], because they contain effective compounds such as calcites, soap, phenol, thymol, carpacrol and flavonoids [11],[13], where the increase of most secretions of enzymes digestive system, for example Almmliz and Tarbesin and this leads to the maximum benefit of the nutrients available in the bird feed by increasing the permeability of the mucosa of the intestine and thus increase the absorption of nutrients, D to promote the flow of blood to all parts and organs of the body which works to relieve heat stress and improve the health of birds [14].

4. Conclusions

In conclusion that adding various levels of Optifeed®, VêO® premium, and Oleobiotec® to the diets as appetite stimulants in the production Performance of broiler males under heat stress conditions. led to a significant increase the performance characteristics Cumulative (1-42) day, especially the fifth treatment T5 compared with the control treatment, in both live body weight, body weight gain, relative growth rate, feed consumption, cumulative feed ratio, the production index, and the economic index.

Supplementary Materials:

No Supplementary Materials.

Author Contributions:

A. F. Ali and Th. T. Mohammed; methodology, writing—original draft preparation, L. K. Al-Bandar; writing—review and editing. All authors have read and agreed to the published version of the manuscript.

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The study was conducted in accordance with the protocol authorized by the University of Anbar, Ethics Committee, Iraq. From a commercial farm, fertile eggs from Ross (308) strain broiler breeder hens were obtained.

Informed Consent Statement:

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Data Availability Statement:

No Data Availability Statement.

Conflicts of Interest:

The authors declare no conflict of interest.

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