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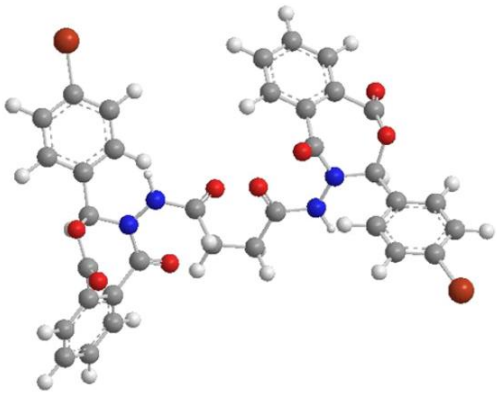

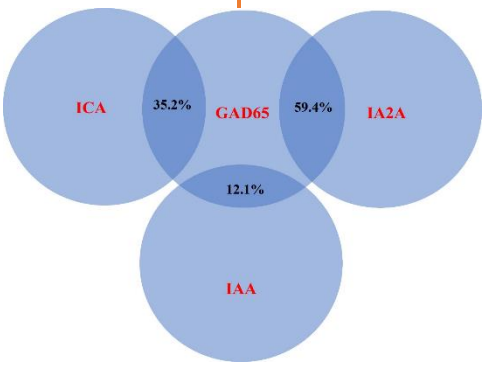

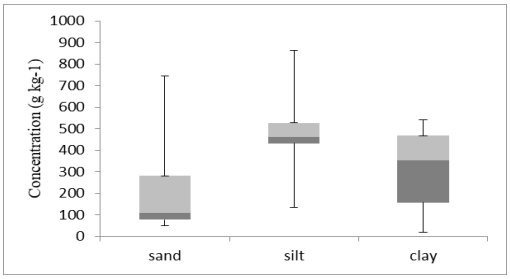

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Impact on Growth Performance, Carcass Quality, and Physiological Characteristics of Broiler Chickens by Using the Various Levels of Dried Tarragon *(Artemisia dracunculus)*

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Abstract

The goal of this investigation is to determine whether adding tarragon to broiler chickens 'diet affects their performance, carcass, and physiological characteristics. A total of One-day-old two hundred eighty broiler chicks (Ross 308) broilers were used to divide randomly into 4 treatments and 5 replicates per procedure.14 birds were used at each repeat. Experimental groups only earned a base diet (control) (T1), a base diet (100 kg) + 200gm dried tarragon (T2), a base diet (100 kg) + 400gm dried tarragon (T3) and base diet (100 kg) + 600gm dried tarragon (T4). The additive of different levels of dried Tarragon not significant differences between all treatments on performances, except for relative (FCR) feed conversion rate was significantly different ($p \geq 0.05$). Although the tarragon ingredient is advantageous on the values of live body weight, body weight gain, feed intake, and FCR in overall periods (1- 42 days), that was a result of T3 therapy. The effects of treatments were significant improvement ($p \leq 0.05$) in the Production Index (PI) and Economic Figure (EF) in T3. In male broiler except for relative thigh, dramatics, and food %, different dried tarragon amounts had no discernible impact on other carcass characteristics, while in female broiler the carcass was significantly affected ($p > 0.05$) by treatments except for relative dramatics and wings %. On the other hand, in both sexes had no impact on the values of the liver, heart and abdominal fat %, while gizzard % was significantly affected ($p > 0.05$) in a female broiler. Therefore, bursae of fabricius in both sexes, pancreas in females, and spleen % in males were not significantly affected. Besides, the dried tarragon did not have any adverse effects on chickens 'welfare.

Introduction

Feed components been described as resources can be safely added to animal feed to hasten the growth of the animals, boosting both the quality and quantity of the products without adversely impacting the animals' health. The use of feed components is an important approach for enhancing livestock overall performance and health. Many natural and inorganic components being utilized as feed additives, however, the use of antibiotics as a yield-enhancing feed additive is prohibited due to the fact of their viable risks to human health (1). Over quite six decades dietary antibiotics are used not only as a method to manage infectious diseases but also to boost growth performance and feed efficiency (2). Tarragon has been used in antidiarrheal, analgesic, and anti-inflammatory remedies and is thought to have antibacterial, antifungal, and anticancer properties (3). The brain is stimulated by tarragon, anxious system, digestive system, circulatory device, and hormonal (endocrine) system. To put it another way, this plant activates every metabolic system on its own, which improves

immunological response (4). Researchers looked for alternative feed supplements to improve animals' fitness and performance due to limitations in the use of antibiotics as a growth stimulation in the feeding of the birds. As a result, chicken production can become more cost-effective (5). The Asteraceae (daisy) family includes the perennial herb Artemisia *dracunculus L.* (tarragon), which has a long history of use in traditional cuisine.. It moreover has a wide scope of medical advantages and has in this manner been comprehensively utilized as a characteristic prescription (6). Additionally, its antibacterial qualities have been proven to be effective in treating intestinal parasites, anorexia, and stomach problems (7). The goal of this study is to see how dried tarragon affects broiler chicken performance and carcass quality.

Materials and Methods

Weighed 300 one day Broiler chickens (Ross 308) were divided into 4 treatment groups at random. Every treatment consists of five duplicate containers, each with 15 birds. This examination was affirmed at the University of Sulaimani – College of Agricultural Engineering Sciences/ Animal Science department in the Kurdistan Region of Iraq, through two stages. The first field experiment, the Second lab analysis. All chickens had access to feed and water *ad libitum* and the diets could be purchased in mash form. At the conclusion of the investigation of each replication, one male and one female were selected at random for slaughter then measurements and tests were performed. The chicks were raised using 3 different diet levels as seen in Table-2. A diet was given to broilers between the ages of 1 d to 42 days were:

T_1: base diet (100kg) (control).
T_2: base diet (100kg) + 200g of Tarragon.
T_3: base diet (100kg) + 400g of Tarragon.
T_4: base diet (100kg) + 600g of Tarragon.

Table 1: Artemisia dracunculus (Tarragon herb), dry rate of nutrient per 100 g

Principle	Nutrient Value	Percentage of RDA
Protein	22.77 g	15
Fat	7.24 g	24
Fiber	7.4 g	19
Metabolizable energy	295 Kcal	15
CHO	50.22	38

RDA: Recommended Dietary Allowance
USDA National nutrient database, (2019)

Table 2: Ingredient formation and analysis of the basic diet (starter, grower, and finisher)

Ingredient, % as feed-basis	Starter diet (1-14 days) %	Growth diet (15-28 days) %	Finisher diet (29-42 days) %
Wheat	23.6	23	27.5
Corn	35.5	34.8	39.7
Meat and bone meal (40%)	3	0.6	0.4
Soybean meal (%44)	29.9	33.04	23.28
Sunflower seed Oil	4	5	5
Dual-calcium phosphate	2.3	1.94	1.86
Limestone	1.15	1.16	1.11
Salt	0.25	0.25	0.25
Methionine	0.2	0.11	0.8
Premix[1]	0.1	0.1	0.1
Total	100	100	100
Chemical analysis of the feed			
** Crude protein %	22	20	17
* Metabolizable energy Kcal/kg	2919	3056	3079
** Ether extract %	5.3	6.05	6.12
* Crude fibre %	3.57	3.65	4.00
** Calcium %	1.19	1.11	1.22
** Phosphor %	0.76	0.55	0.57
* Lysine %	1.19	1.2	1.01
* Methionine + Cysteine %	0.89	0.92	0.89

[1]Premix (Vitamin. A 800.000 IU; Vitamin. D3 170.000 IU; Vitamin. E 980 mg; Vitamin. K 95 mg; Vitamin. B1 13 mg; Vitamin. B2 220 mg; Vitamin. B6 75 mg; Vitamin. B12 800 mg; Folic acid 20 mg; Choline Chloride 12.000 mg; Antioxidant 1.900 mg; Iron 2.500 mg; Copper 400 mg; Zinc 2.600 mg; Selenium 7.5 mg; Calcium 24.00%; Sodium 5.40%; Phosphorus 8.40%; Methionine 5.40%; Methionine + Cystine 5.70% and Lysine 5.60%.
[2]The nutritional requirement is determined according to (2). * calculated, ** chemical analysis.

Dried Tarragon preparation method:

In this research, The Tarragon plant was bought in July from the neighborhood sulaimani vegetable store.. After the soil, plants, and portions of the herb are unusable were washed and discarded, it is dried at room temperature after being placed in a clean space. Dried samples of tarragons were applied to the experimental diets and powdered in a mill (8).

Actual performance in one-day-old to 42 days:

Cumulative attributes were measured weekly including live body weight, weight gain, feed intake, feed conversion ratio, production Index and Economic figure, as follows:

Live body weight, at the start of the experiment, we weighed the birds per replicate, and we did so every day after that (15, 22 28, 35, and 42 days of age) according to (9). Bodyweight gain and feed intake were calculated according to (10). Feed conversion ratio was calculated according to (11). Whereas production index and economic figure were calculated according to (12).

Carcass Traits:

The carcass characteristics were taken after the end of the experiment:

$$\text{Dressing percentage (without edible viscera)} = \frac{\text{weight of carcass (g)}}{\text{live weight (g)}} \times 100$$

Breast, Back, Wings, Thigh, Drumstick, and Leg percentage:

The main parts of the breast, back, wings, thigh, drumstick, and leg were calculated according to (10).

Viscera internal rate of ingestion into the live body weight:
following bird slaughter and the removal of the edible viscera (liver, heart, gizzard, and abdominal fat), Each ratio was computed in accordance with (10).

Meat chemical analysis:
At the age of 42 days, a sample of the flesh from the breast, thigh, and wings was collected for analysis: Moisture, Protein, Fat, and Ash. The procedure described in the AOAC (13) by calculating the percentages of all nitrogen in meat samples using Micro-Kjeldahl, the protein content was estimated. The approach (Soxhlet), which was mentioned by (14) was followed. The method described in the AOAC (13) was used by the system Oven to estimate moisture for 24 hours at 105 °C. using the procedure outlined in (15) to calculate the 5–6 hours of ash produced by a muffle furnace operating at 550 c.

Physiological traits:

$$\text{Fabricia gland, Spleen and Pancreas } \% = \frac{\text{weight (g)}}{\text{live body weight (g)}} \times 100$$

Statistical analysis:
During the experiment, all data collected were analyzed using Excel software. Analysis of data is done using the XLSTAT software. Additionally, means are compared utilizing the various range tests of Duncan when compared to significance of 0.05.

Results

Impact of the utilization of different levels of dried Tarragon on live body weight of broiler chickens:
The results of various levels of dried tarragon on live body weight over the entire experimental
period are shown in table 3, the effect of dried tarragon LBW was not a significant difference (P 0.05) across all time periods during the experiment, in the first period the best mean was T3 (194) g and lowest mean T4 was (188) g, whereas T1 (control) it was (189.67) g. In period (8-14) and (15-21) day T1 was the highest mean, while the lowest means was (T4 and T2). On the other hand, period (22-28) days the best mean was T2 (1641.67) g, however, the lowest mean T1 was (1591.67) g. In the last two periods, T3 was the highest means (2458.34 and 3208.34) g, on the other hand the lowest mean in period (29-35) day T4 was (2238.34) g, whereas T1 (control) was (2266.67) g, whilst in last period T1 (control) (3026.67) g was the lowest mean. (1) mentioned that the effects of tarragon powder were not significant on average body weight (ABW), they also reported that the impact of the tarragon additive on average body weight (ABW) was not significant (16).

Table 3: Impact of the utilization of different levels of dried Tarragon on live body weight of broiler chickens (g /bird) (Mean ± S.E):

	Periods (days)					
T.	**1-7 day**	**8-14 day**	**15-21 day**	**22-28 day**	**29-35 day**	**36-42 day**
T_1	189.67 ± 0.34[a]	491.68 ± 08.34[a]	1016.69 ± 16.67[a]	1591.67 ± 71.20[a]	2266.67 ± 050.69[a]	3026.67 ± 132.46[a]
T_2	192.00 ± 1.16[a]	491.67 ± 36.33[a]	1000.00 ± 28.87[a]	1641.67 ± 46.40[a]	2325.00 ± 090.14[a]	3135.00 ± 150.20[a]
T_3	194.00 ± 0.58[a]	491.67 ± 08.34[a]	1000.01 ± 52.05[a]	1625.00 ± 50.00[a]	2458.34 ± 101.38[a]	3208.34 ± 134.80[a]
T_4	188.00 ± 1.16[a]	458.34 ± 08.34[a]	1016.67 ± 30.05[a]	1600.00 ± 52.05[a]	2238.34 ± 124.38a	3060.00 ± 135.94[a]

.Values in columns containing various letters differ from one another ($P \leq 0.05$)
T_1: base diet (100kg) (control), T_2: base diet (100kg) + 200g of Tarragon, T_3: base diet (100kg) + 400g of Tarragon and T_4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on body weight gain of broiler chickens:
Table 4. findings showed no observable differences in the body weight gain (BWG) over the whole duration of the experiment, in all periods, in period (36-42) days the best mean was (821.67) g

for T4, while the lowest mean in T3 was (750) g, when compared with T1 (control) was (760) g. That is varied among (2988.67) g in T1 to (3170.17) g in T3 at the overall period. Dietary therapies did not have any significant effect on average body weight gain at the end of the experiment (P>0.05), while birds fed 0.4% tarragon leaves 0.2% tarragon leaves + 0.2% Peppermint leaves (17). There was also no substantial difference in weight gain relative to the control group in the procedure of 0.5 percent tangent extract (18).

Table 4: Impact of the utilization of different levels of dried Tarragon on body weight gain of broiler chickens (g /bird) (Mean ± S.E):

	Periods (days)						
T.	**1-7**	**7-14**	**14-21**	**21-28**	**28-36**	**36-42**	**Overall**
T_1	156.67 ± 0.45[a]	302.00 ± 08.00[a]	525.00 ± 25.00[a]	575.00 ± 87.80[a]	675.00 ± 114.57[a]	760.00 ± 099.88[a]	2988.67 ± 132.33[a]
T_2	158.00 ± 0.58[a]	299.67 ± 37.03[a]	508.34 ± 30.05[a]	641.67 ± 30.05[a]	683.34 ± 130.18[a]	810.00 ± 158.30[a]	3096.00 ± 149.62[a]
T_3	160.84 ± 0.89[a]	292.67 ± 29.64[a]	508.34 ± 46.40[a]	625.00 ± 38.19[a]	833.34 ± 145.30[a]	750.00 ± 190.99[a]	3170.17 ± 134.90[a]
T_4	154.67 ± 0.93[a]	276.34 ± 08.42[a]	558.34 ± 36.33[a]	583.34 ± 46.40[a]	638.34 ± 145.30[a]	821.67 ± 213.90[a]	3022.67 ± 136.48[a]

.Values in columns containing various letters differ from one another ($P \leq 0.05$)
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on feed intake of broiler chickens:
The results in a table- 5. showed that the effect of treatments factor in all periods and overall on feed intake mean are not significant differences, the maximum mean was (4286.33g) in T3 and the better mean was (4056.29g) in T4, while T1 (control) which was (4151.08g). During the trial periods, the tarragon additive did not affect on the daily feed intake (DFI) values (1). The findings show that the treatment that includes 1.5 percent extract of tarragon does not make a substantial difference in the feed intake compared with the control treatment (18). (19) showed that experimental dietaries did not statistically create any substantial difference between the feed intake of different treatments (P>0.05).

Table 5: Impact of the utilization of different levels of dried Tarragon on feed intake of broiler chickens (g /bird) (Mean ± S.E):

	Periods (days)					
T.	**8-14**	**15-21**	**22-28**	**29-35**	**36-42**	**Overall**
T_1	365.00 ± 02.89[a]	708.89 ± 57.14[a]	900.00 ± 25.46[a]	1127.38 ± 63.74[a]	1414.82 ± 130.31[a]	4151.08 ± 264.17[a]
T_2	371.34 ± 08.75[a]	723.02 ± 11.53[a]	965.08 ± 04.20[a]	1142.18 ± 48.78[a]	1456.07 ± 019.70[a]	4286.33 ± 053.47[a]
T_3	351.67 ± 11.05[a]	671.67 ± 34.66[a]	949.21 ± 16.29[a]	1175.75 ± 08.53[a]	1349.75 ± 107.16[a]	4146.37 ± 159.99[a]
T_4	351.34 ± 22.01[a]	705.56 ± 45.23[a]	966.60 ± 51.72[a]	1051.91 ± 21.86[a]	1332.23 ± 148.11[a]	4056.29 ± 226.64[a]

Values in columns containing various letters differ from one another ($P \leq 0.05$).
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on feed conversion ratio of broiler chickens: Table 6. Showed the effect of the treatments factor on (FCR) in all periods was not significant, in period (36-42) days the highest mean was (2.01) T3, while the lowest mean for T1 (control) it was (1.91). On the other hand, the overall (FCR) means were significantly different ($p \geq 0.05$) the highest mean was (1.65) in T1 (control) compared with T3 which was the lowest mean (1.31). Consumption of experimental rations resulted in a statistically significant improvement in the conversion ratio of 0.5% Tarragon powder treatment relative to control treatment and 0.125% Tarragon powder treatment in 1-42 days (P<0.01) (8).

In the early days, tarragon was used as a medicine to increase appetite, and its liquid extract can increase gast ric juice secretion. The use of Tarragon in diets is not a method intended to cover antacid influences but to prepare the basis for the creation of preservative factors such as bicarbonate growth, mucin secretion, contraction properties, or the capacity of gastric and helicobacter (20).

Table 6: Impact of utilization of different levels of dried Tarragon on feed conversion ratio of broiler chickens (g feed g weight) (Mean ± S.E):

	Periods (days)					
T.	**8.-14**	**15-21**	**22-28**	**29-35**	**36-42**	**Overall**
T_1	1.22 ± 0.04[a]	1.35 ± 0.08[a]	1.67 ± 0.32[a]	1.75 ± 0.22[a]	1.91 ± 0.23[a]	1.65 ± 0.09[a]
T_2	1.30 ± 0.19[a]	1.44 ± 0.11[a]	1.52 ± 0.07[a]	1.80 ± 0.32[a]	2.01 ± 0.52[a]	1.40 ± 0.08[b]
T_3	1.21 ± 0.05[a]	1.35 ±0.15[a]	1.54 ± 0.12[a]	1.51 ± 0.26[a]	1.97 ± 0.33[a]	1.31 ± 0.01[b]
T_4	1.28 ± 0.10[a]	1.29 ± 0.14[a]	1.70 ± 0.19[a]	1.88 ± 0.49[a]	1.97 ± 0.61[a]	1.35 ± 0.10[b]

.Values in columns containing various letters differ from one another ($P \leq 0.05$)
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on production index and economic figure of broiler chickens, showed in the table 7.

The results in a table- 7. show significant differences ($p \leq 0.05$), in all periods for production index, for period (36-42) days the better mean represent in T3 reached (460.72) and was unique compared to others. In T1 (control) (404.68), the mean was the lowest. Table- 7. shows a significant improvement ($p \geq 0.05$) in the economic figure for T3 which was (48.25), while a lower value was for T1 (control) which reached (38.55).

Table 7. Impact of the utilization of different levels of dried Tarragon on production index and economic figure of broiler chickens (Mean ± S.E):

T.	**Production Index**					**Economic Figure**
	Periods (days)					
	8-14	**15-21**	**22-28**	**29-35**	**36-42**	
T_1	190.87 ± 5.49[a]	321.47 ± 10.95[b]	355.16 ± 10.01[b]	395.89 ± 8.38[b]	404.68 ± 2.87[c]	38.55± 0.61c
T_2	180.87 ± 7.55[ab]	270.94 ± 2.33[c]	414.51 ± 7.86[a]	403.66 ± 5.26[b]	432.15 ± 5.97[b]	41.62 ± 0.87b
T_3	194.034 ± 2.96[a]	344.68 ± 2.76[a]	403.99 ± 2.19[a]	462.17 ± 6.39[a]	460.72 ± 9.67[a]	48.25 ± 1.02a
T_4	172.34 ± 4.06[b]	323.67 ± 5.46[b]	351.22 ± 3.59[b]	353.65 ± 11.49[c]	425.40 ± 2.63[b]	43.36 ± 1.09b

.Values in columns containing various letters differ from one another ($P \leq 0.05$)
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on dressing, breast, thigh, dramatics, wings, back, and leg percentage of male broiler chickens:

Dressing, breast, wings, and back percentage for males in the table- 8. shows no significant differences between treatments, for all except breast the beast percentage was T2, while the lowest percentage for dressing in T4 and T2 for wings and back, while the best percentage for breast was (43.59) % for T3, the lowest percentage T4 was (40.89) %. On the other hand, table- 8. shows significant differences among treatments ($p \leq 0.05$) in thigh, dramatics, and leg, the highest percentage for thigh and dramatics were (17.27 and 12.28) % for T4. For leg the highest percentage for T1 (control).

Table 8: Impact of the utilization of different levels of dried Tarragon on dressing, breast, thigh, dramatics, wings, back, and leg percentage of male broiler chickens (Mean ± S.E):

T.	Dressing %	Breast %	Thigh %	Dramatics %	Wings %	Back %	Leg %
T_1	76.36 ± 0.97^{a}	43.31 ± 2.36^{a}	16.87 ± 0.13^{a}	10.35 ± 0.35^{b}	8.75 ± 0.04^{a}	19.41 ± 2.32^{a}	3.36 ± 0.06^{a}
T_2	76.37 ± 0.50^{a}	42.24 ± 0.24^{a}	14.91 ± 0.01^{b}	10.61 ± 0.01^{b}	9.46 ± 0.02^{a}	20.77 ± 0.05^{a}	2.08 ± 0.03^{c}
T_3	75.13 ± 0.68^{a}	43.59 ± 2.22^{a}	16.96 ± 0.41^{a}	11.53 ± 0.18^{a}	8.70 ± 0.68^{a}	17.90 ± 0.75^{a}	2.89 ± 0.22^{b}
T_4	74.52 ± 0.02^{a}	40.89 ± 0.01^{a}	17.27 ± 0.01^{a}	12.28 ± 0.01^{a}	9.37 ± 0.01^{a}	18.25 ± 0.05^{a}	2.84 ± 0.02^{b}

.Values in columns containing various letters differ from one another ($P \leq 0.05$)

T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on dressing, breast, thigh, dramatics, wings , back and leg % of female broiler chickens:For female, dramatics and wings percentage in a table- 9. shows no significant differences among treatments, the highest percentage for T4, while dressing, ($p \leq 0.05$), the ≤breast, thigh, back and leg percentage there are significantly improving among treatments highest percentage for dressing was (76.54) % for T2, for breast the best percentage was (44.50) % in T1 (control), for thigh, back and food the best percentage was for T4.

Table 9: Impact of the utilization of different levels of dried Tarragon on dressing, breast, thigh, dramatics, wings, back and leg percentage of female broiler chickens (Mean ± S.E):

T.	Dressing %	Breast %	Thigh %	Dramatics %	Wings %	Back %	Leg %
T1	74.47 ± 0.97^{bc}	44.50 ± 2.36^{a}	16.20 ± 0.13^{b}	11.53 ± 0.35^{a}	8.88 ± 0.04^{a}	17.62 ± 2.32^{b}	2.56 ± 0.01^{b}
T2	76.54 ± 0.50^{a}	43.80 ± 0.24^{a}	16.05 ± 0.01^{b}	11.58 ± 0.01^{a}	8.87 ± 0.02^{a}	18.55 ± 0.05^{ab}	2.30 ± 0.09^{c}
T3	73.62 ± 0.68^{c}	41.58 ± 2.22^{a}	18.29 ± 0.41^{a}	11.64 ± 0.18^{a}	9.05 ± 0.68^{a}	17.68 ± 0.75^{b}	2.56 ± 0.02^{b}
T4	75.70 ± 0.02^{ab}	37.35 ± 0.01^{b}	19.59 ± 0.01^{a}	12.47 ± 0.01^{a}	9.25 ± 0.01^{a}	19.95 ± 0.05^{a}	3.22 ±0.01^{a}

.Values in columns containing various letters differ from one another ($P \leq 0.05$)

T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on the liver, gizzard, heart and abdominal fat percentage of male and female broiler chickens:

Effect of treatments factor on liver, gizzard, heart and abdominal fat percentage in both sexes shown in table-10. in both sexes all were not significant differences among treatments except gizzard percentage in female was significant differences among treatments ($p \leq 0.05$), the best percentage was T2. Liver in both sexes the highest percentage were for T1 (control), the largest percentage of gizzard in male was for T4, while the heart in males was T1 (control), in females was T3. However, the best percentage of abdominal fat in males was T3, whereas in females was T4.

Table 10: Impact of the utilization of different levels of dried Tarragon on liver, gizzard, heart and abdominal fat percentage of male and female broiler chickens (Mean ± S.E):

T.	Liver %		Gizzard %		Heart %		Abdominal Fat %	
	Male	Female	Male	Female	Male	Female	Male	Female
T_1	3.10 ± 0.46^{a}	2.96 ± 0.01^{a}	0.88 ± 0.12^{a}	0.95 ± 0.01^{b}	0.59 ± 0.05^{a}	0.48 ± 0.03^{a}	1.08 ± 0.22^{a}	1.01 ± 0.01^{a}
T_2	3.05 ± 0.05^{a}	2.86 ± 0.19^{a}	0.86 ± 0.01^{a}	1.03 ± 0.03^{a}	0.46 ± 0.01^{a}	0.49 ± 0.03^{a}	1.21 ± 0.01^{a}	0.89 ± 0.16^{a}
T_3	2.79 ± 0.18^{a}	2.95 ± 0.02^{a}	0.81 ± 0.04^{a}	0.95 ± 0.02^{b}	0.57 ± 0.06^{a}	0.51 ± 0.04^{a}	0.84 ± 0.04^{a}	1.01 ± 0.01^{a}
T_4	2.91 ± 0.01^{a}	2.69 ± 0.01^{a}	0.89 ± 0.01^{a}	0.94 ± 0.01^{b}	0.46 ± 0.01^{a}	0.50 ± 0.01^{a}	0.85 ± 0.01^{a}	0.79 ± 0.01^{a}

.Values in columns containing various letters differ from one another ($P \leq 0.05$)

T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on bursae of fabricius, pancreas and spleen percentage of male and female broiler chickens:

In the table- 11. shown impact of treatment on bursae of fabricius, pancreas and spleen percentage in both sexes were not significant differences between treatments except pancreas percentage in male and spleen percentage in female were significant differences between treatments ($p \leq 0.05$), the best percentage of the pancreas in male was T4, the lowest percentage of the spleen in female was T1. The highest percentage of bursae of fabricius in both sexes were T2, while the pancreas percentage in female the highest was T4, whereas the largest percentage of the spleen in male was T2.

Table 11: Impact of the utilization of different levels of dried Tarragon on bursae of fabricius, pancreas, and spleen percentage of male and female broiler chickens (Mean ± S.E):

T.	Bursae of Fabricius %		Pancreas %		Spleen %	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
T_1	0.15 ± 0.05^{a}	0.08 ± 0.005^{a}	0.15 ± 0.05^{ab}	0.22 ± 0.01^{a}	0.16 ± 0.02^{a}	0.15 ± 0.01^{a}
T_2	0.15 ± 0.01^{a}	0.10 ± 0.015^{a}	0.17 ± 0.01^{ab}	0.15 ± 0.04^{a}	0.17 ± 0.01^{a}	0.15 ± 0.01^{a}
T_3	0.09 ± 0.02^{a}	0.09 ± 0.005^{a}	0.11 ± 0.01^{b}	0.22 ± 0.01^{a}	0.15 ± 0.02^{a}	0.15 ± 0.01^{a}
T_4	0.09 ± 0.01^{a}	0.10 ± 0.005^{a}	0.22 ± 0.01^{a}	0.23 ± 0.01^{a}	0.14 ± 0.01^{a}	0.12 ± 0.01^{b}

Values in columns containing various letters differ from one another ($P \leq 0.05$).

T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on the chemical composition of breast of broiler chickens:

Table 12. shows the effect of treatments factor on moisture, protein, ash, and fat % of the breast. Moisture and ash, the % in the breast ere not significantly impacted by treatments in the broiler. The results of protein and fat percentage show significant differences ($P \geq 0.05$), a great % represented in T1 (control), and were different from others.

Table 12: Impact of the utilization of different levels of dried Tarragon on the chemical composition of breast of broiler chickens (Mean ± S.E):

T.	**Moisture %**	**Protein %**	**Fat %**	**Ash %**
T1	75.26 ± 1.60^{a}	20.7 ± 0.16^{a}	0.58 ± 0.02^{c}	1.13 ± 0.23^{a}
T2	73.93 ± 0.82^{a}	$19.98 \pm 0.22a^{b}$	0.64 ± 0.04^{a}	1.28 ± 0.29^{a}
T3	72.67 ± 1.12^{a}	19.63 ± 0.30^{b}	0.60 ± 0.08^{b}	1.26 ± 0.28^{a}
T4	73.96 ± 1.48^{a}	19.99 ± 0.39^{ab}	0.61 ± 0.04^{b}	1.25 ± 0.16^{a}

.Values in columns containing various letters differ from one another ($P \leq 0.05$)

T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on the chemical composition of the thigh of broiler chickens:

Table 13. shows the impact of treatments factor on moisture, protein, ash, and fat % of the thigh. Moisture, protein, and ash % in the thigh were not significantly impacted by treatments. While fat percentage important differences ($P \geq 0.05$) for T4 was the lowest % than other.

Table 13: Impact of the utilization of different levels of dried Tarragon on the chemical composition of thigh of broiler chickens (Mean ± S.E):

T.	Moisture %	Protein %	Fat %	Ash %
T_1	72.93 ± 1.72[a]	20.07 ± 0.81[a]	0.59 ± 0.09[c]	1.12 ± 0.06[a]
T_2	73.25 ± 1.17[a]	20.06 ± 0.56[a]	0.63 ± 0.03[b]	1.21 ± 0.04[a]
T_3	75.91 ± 0.92[a]	20.96 ± 0.37[a]	0.65 ± 0.11[a]	1.16 ± 0.05[a]
T_4	74.89 ± 2.13[a]	20.6 ± 0.80[a]	0.57 ± 0.014[d]	1.26 ± 0.16[a]

.Values in columns containing various letters differ from one another ($P \leq 0.05$)
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

Impact of the utilization of different levels of dried Tarragon on the chemical composition of wings of broiler chickens:

The effect of the treatments factor on the chemical composition of wings percentage of broiler indicated in Table- 14. The outcomes of all composition percentages except fat were not significant. The results of fat indicate important differences ($P \geq 0.05$), a great percentage represented in T4, and was unique compared to others.

Table 14: Impact of the utilization of different levels of dried Tarragon on the chemical composition of wings of broiler chickens (Mean ± S.E):

T.	Moisture %	Protein %	Fat %	Ash %
T_1	75.65 ± 1.98[a]	20.45 ± 0.53[a]	0.60 ± 0.04[b]	1.16 ± 0.05[a]
T_2	76.10 ± 0.48[a]	20.57 ± 0.13[a]	0.62 ± 0.07[a]	1.45 ± 0.19[a]
T_3	76.38 ± 1.42[a]	20.65 ± 0.39[a]	0.61 ± 0.05[a]	1.17 ± 0.08[a]
T_4	75.36 ± 0.24[a]	20.37 ± 0.07[a]	0.50 ± 0.12[c]	1.43 ± 0.26[a]

Values in columns containing various letters differ from one another ($P \leq 0.05$).
T1: base diet (100kg) (control), T2: base diet (100kg) + 200g of Tarragon, T3: base diet (100kg) + 400g of Tarragon and T4: base diet (100kg) + 600g of Tarragon.

A. dracunculus has a long history of traditional use, and an increasing number of research are confirming its medicinal benefits. In comparison to other healthy foods and spices, it has a significant in vivo effect. In order to investigate its pharmacological activity, the source of the plant material and a complete taxonomic description are required, as different cytotypes accumulate different phytochemical profiles and hence have varied biological activities. Tarragon is a member of the Artemisia genus, which contains roughly 500 species with a variety of aromatic flavors and biological qualities (21). Tarragon essential oils contain phenolic chemicals, carotenoids, coumarin compounds, tannins, polyacetylene, sesquiterpene, and mineral compounds. They also have unique biological properties and phytochemicals (22). Tarragon has been utilized in antidiarrheal, analgesic, and anti-inflammatory treatments due to its antibacterial, antifungal, and anticancer characteristics (3). In another study, tarragon was added to broiler diets, however, the effect of the tarragon additive on average body weight, average weight gain, or feed conversion rate was not significant. Due to the rapid passage durations in the digestive tract, the usage of terpenes in these plants on chickens becomes worthless, and they may become trapped in plant secretory glands (23). Several research indicated that varying the amount of tarragon in the chicken feed had no effect on the rate of food consumption and that the maximum percentage of feed utilization was. The highest mean of feed intake in a study on broiler chicks was noticed in the group receiving (T2) 200gm of tarragon portion of tarragon. It is possible to eliminate all of the helpful combinations during the tarragon drying process, rendering them ineffective. On the other hand, the lowest (T4) feed intake was noticed in the group receiving a 600gm portion of tarragon. The addition of tarragon reduces the number of harmful bacteria in the gut while increasing the number of good bacteria, causing a rise in the secretion of digestive latex (24). As a result, it's possible that performance has improved. As a result, the digestive process in the stomach improves, and the stomach evolves, as does the length and diameter of the intestine, resulting in greater food absorption (25). (5) Agreed with our findings, observing that the usage of

Tarragon powder in broilers had no significant effect. The significant differences in the % of fat in the carcass cuts may be due to the presence of a high % of essential oil in the tarragon plant. In this study, the tarragon additive had a positive effect for days 1-42 for the group (T3) 400gm of tarragon in the area of daily weight gain, and feed consumption ratio, it's probable that this is related to the structure's bioactive components, the plant's drying, and the birds' quick digestion.

Conclusions

According to the findings of this study, dietary supplementation of varied doses of dried Tarragon to broiler chickens improves the feed consumption ratio in broiler chickens fed 400gm/100g of feed but has no significant effects on performance parameters. As a result, further research is recommended on how the use of dried tarragon in broiler diets affects the birds' traits, as it has a positive effect on broiler performance.

Conflict of interest

The authors confirm that they are not affiliated with or involved in any organization or entity with financial interests.

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