Comparison of the effect of adding different levels of digestarom and probiotics in the diet on some productive and measurements of intestinal lengths and weights system of boiler chickens

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Abstract

This study aimed to assess intestinal length in broiler chickens and ascertain the impact of plant extracts, represented by Digestarome, on various anatomical parameters for the digestive system, in comparison to microorganisms. The research used 450 one-day-old broiler chicks, which were reared for five weeks. The results showed a significant improvement ($P < 0.05$) in feed consumption each week (5-1) for both treatments (T5 and T6) during the course of the trial when compared to the control treatment (T1). Overall treatments, there was a significant improvement in the feed conversion factor at the $P < 0.05$ level. Furthermore, the mixture treatment's average live body weight varied every week until it reached the fifth treatment (T5). The rates of live body weight in the two treatments (T2 and T3) significantly declined in the week (2-4), whereas the rates of weight gain in all weeks significantly increased in the treatments (T5 and T6) Additionally, a notable improvement was noted in support of the therapy. (T4, T5, and T6), as they recorded a significant superiority in the rate of weight gain for all weeks. Clearing with significant differences between the treatments about carcass cuts for the treatments (T5 and T6) the highest value was recorded. As for the weight and length of the intestines, all of the additional treatments outperformed the control treatment (T1) about the weight of the intestines. As for the intestine length, the sixth treatment (T6) outperformed significantly. ($P<0.05$) on the control treatment (T1) and did not differ significantly from the other addition treatments.

Keywords: Broiler, Digestarom, Diet

Introduction

Nutrition plays a major role in the profitable production of broilers and represents on average about 80-90% of the total production cost. Modern broilers can reach 2 kg body weight by consuming 3 kg of feed within 5 weeks [2]. A healthy digestive tract plays a key role in the optimal growth performance of broilers because it supports better digestion and absorption of nutrients. Therefore, a healthy digestive tract is essential

for profitable poultry production. Well-functioning and healthy intestines [3]. Researchers directed their efforts to evaluate herbs as feed additives for broiler production, as they are good, fast, cheap, and a source of white meat, as they found that plant additives for feed have combinations that improve weight gain of broilers, feed efficiency, and reduce mortality rates. and increasing the ability to live [1]. Plant extracts known as digestaroms are made from a variety of aromatic herbs and spices. The entirety of the plant, its seeds, fruits, leaves, or roots, as well as essential oils and other forms of physiologically active substances including phenols, flavonoids, and alkaloids [4]. are examples of digestaroms [5]. The little intestine has three components: the ileum, jejunum, and duodenum. One of the features of these sections is their inner surface. The small intestine appears microscopically, consisting of numerous. Folds. called. (plicae circulares). When examined. microscopically, intestinal. villi. were seen. These structures are protrusions in the mucous membrane toward the lumen. Digestarom is of increasing interest due to its many positive modulatory effects on gut microbiome and metabolic activity [6]. anti-inflammatory immune response [7], and intestinal barrier properties (Zou *et al*., 2006). Regarding meat chickens the height of the villi in the small intestine of broiler chickens is an indication of the morphological changes in the digestive system's tissues [8]. These changes improve the absorptive surface area as well as the efficiency of digestion and nutrient absorption. According to [9]. an increase in the size of the villi may also result in an increase in the activity of the enzymes produced from the tips of the villi, which promote digestibility. According to[10]. one of the digestarome's other roles is to stimulate and increase the number of goblet cells and confirmed by [11]. who carried out research in which they concluded that there was an increasing trend in the broiler chickens' duodenum's mucous layer thickness. Linearity with rising digestarome concentrations as previously observed [12]. supporting digestarome's possible beneficial effects on intestinal architecture Probiotics are living communities of beneficial microorganisms that, when introduced in sufficient quantities into the host’s digestive tract, will play a role in supporting its health and safety from diseases. Researchers [13] indicated that the term probiotics should only be used for products. Which contain beneficial microorganisms at effective levels and which have been tested in rigorous clinical experiments on animals. Probiotics are included as nutritional additives in special foods in accordance with the US Food and Drug Administration (FDA), [14]. as their use has been proven among the basic and healthy materials that have received wide spread. Its efficiency in improving the health condition of the animal [15]. Poultry are often fed with probiotics to increase feed intake and retain nutrients represented by carbohydrates, water, sugars, enzymes and proteins [16]. Studies show that it has a positive effect on microbial populations, nutrient absorption, intestinal barrier function, antioxidant capacity, apoptosis, and immune responses, all of which continuously improve gastrointestinal health and broiler production performance [17]. Feed intake, body weight growth, and feed conversion rate are often parameters that define how beneficial probiotics are for poultry and other food animals [18]. The current study seeks to assess intestinal length in

broiler chickens and ascertain the impact of plant extracts, represented by Digestarome, on various anatomical parameters for the digestive system, in comparison to microorganisms, represented by probiotics.

Table (1): Herbs and plant parts used in Digestarom.

Parts utilized	Latin name	Common name
Seeds	*Pimpinella anisum*	anise
Seeds	*Carum carvi*	cumin
Shell	*Cinnamomum verum*	cinnamon
Flowers	*Matricaria recutita*	Chamomile
Shell	*Citrus sp.*	citrus fruits
Buds	*Syzygium aromaticum*	Cloves
Seeds	*Foeniculum vulgare*	fennel
bulb	*Allium sativum*	garlic
Root	*Zingiber officinale*	ginger
Leaves	*Melissa officinalis*	honey
bulb	*Allium cepa*	onion
Leaves	*Origanum vulgare*	marjoram
Leaves	*Mentha piperita*	Mint
Leaves	*Rosmarinus officinalis*	Rosemary
Leaves	*Salvia officinalis*	Sage plant
Leaves	*Thymus vulgaris*	zaatar
Root	*Valeriana officinalis*	Valerian plant

Materials and Methods

Date and location of the experiment

This experiment was conducted in a private (domestic) field in the Hindiyah District of Karbala Governorate for a period of 5 weeks from 10/1/2022 to 11/4/2022, to evaluate some production characteristics and the histological image of the intestines of broilers fed diets containing different levels of Digestarom powder, probiotic powder, and their mixture.

Preparing the chickens

I used 450 unsexed one-day-old broiler chicks of the Ross (308) breed, which were prepared from the Al-Baz hatchery/ near the city of Al-Zawar Al-Imam Al-Hassan, Karbala Governorate. They were raised in a hall divided by barriers, and the chicks were randomly distributed at one day of age into six equal treatments. Each treatment contained 75 chicks, with three replicates for each treatment, and each replicate contained 25 chickens. The chicks were raised in a special field for poultry birds, where

Ross (308) broilers were used (6 treatments) in a special hall divided in the form of wire mesh barriers with separate doors for each barrier.

Chicken management

The dimensions of each barrier were 2 x 2.5 m. The floor was covered with sawdust 2.5 thick. cm, and a continuous lighting system was followed throughout the experiment. Air vacuums were used to obtain ventilation and an appropriate temperature during the different stages of the bird's growth. It started with a temperature of 32°C, and was gradually reduced to reach 23°C at the age of four weeks until the end of the experiment. Plastic feed dishes with a diameter of 38 cm, with one tray for each barrier in the first week of the bird's life, then it was replaced with cylindrical hanging feeders with a diameter of 40 cm, at a rate of one feeder for each barrier, which is gradually raised as the chicks age, provided that it is at the level of the bird's chest. Inverted plastic floor manholes with a capacity of 5 liters were also used, with one manhole. For each treatment, with feed and water continued to be provided ad libitum, all birds were fed the starter and finisher rations.

Chicken management

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statistical analysis

The statistical program (Statistical Analysis System - SAS (2012)) was used to analyze the data to study the effect of different parameters on the studied traits according to a complete random design (CRD), and the significant differences between the means were compared with the multinomial test [20].

Results and Discussion

Productive qualities

Average live body weight

Table (2) presents effect impact of varying the amount of digestarom and probiotics in combination with their diet on the average live body weight of Ross (308) broilers over the course of five weeks of life is displayed in the table (g/bird/week). The results

of the statistical analysis indicated that there were significant differences in the live body weight between the treatments studied. The live body weight of the chicks was taken on the day of the experiment for all treatments, and no significant differences were recorded between the treatments. In the first week of the experiment, the mixture treatment (T6) (digestarom 2.5 g/kg feed + probiotics 2.5 g/kg feed) recorded the greatest average body weight and showed significant differences from the other treatments (T4, T3, T2, and T5). In contrast, the control treatment (T1) had the lowest average live body weight and showed no significant differences from treatment (T2), and treatment (T5) and treatment (T4) showed significant similarities. The second treatment (T2) had the lowest average body weight of the chickens during the second week of the experiment, indicating that there were substantial variations between the treatments. The mixed treatment (T6) was shown to be significantly better than the treatments (T4, T3, and T5). It was also noted that there were significant differences in the remaining treatments over the treatment. Control (T1). At the third week of the experiment, the first treatment (T1) recorded the lowest average body weight of chicks, while it was followed by the two treatments (T3 and T2), which did not differ significantly between them. Also, the two treatments (T5 and T4) differed significantly from the rest of the treatments, while the mixture treatment (T6) recorded the highest average weight. Body for chickens. The control treatment had the lowest average body weight and did not differ substantially from the second treatment (T2), which in turn did not differ from the third treatment (T3). However, in the fourth week of the trial, the mixed treatment (T6) was considerably superior to all treatments. The mixture treatment (T6) achieved the highest average body weight and differed significantly from the other experimental treatments in the fifth week of the experiment, with the exception of the fifth treatment (T5), which did not significantly differ from the other two treatments (T4 and T3). This is on the one hand and on the other hand. Treatment (T2) did not differ significantly from treatment (T3), on the other hand, while (T1) recorded the lowest average body weight. From these data, we conclude that the mixture treatment (T6) recorded the highest values for the average live body weight of broiler chickens during five weeks of the experiment. This is attributed to the properties of the active compounds present in the composition of these feed additives and their effective role in balancing the microbial ecosystem of the digestive tract and thus reducing The body is infected with microbial digestive diseases and improves the level of performance of the digestive tract in increasing the benefit from the feed consumed, which is reflected in an increase in the average live body weight of broiler chickens.

Table (2): The effect of adding different levels of digstrom and probiotics and their mixture the average life body weight of broiler chickens atttt their diet Ross (308) (average ± standard error).

Transactions	Day 1	Week1	Week2	Week3	Week4	Week5
T1	45.20 ±0.25 a	184.92 ± 0.34 d	399.71 ± 0.31 de	895.06 ± 0.32 e	1464.33 ± 1.33 d	2060.33 ±0.33 d

T2	45.73 ± 0.08 a	189.40 ± 0.55 d	404.01 ± 0.85 e	901.09 ± 0.85 de	1455.66 ± 0.33 e	2089.00 ± 0.57 c
T3	45.60 ± 0.52 a	195.103±0.65 c	411.71 ± 0.80 d	911.397 ±0.39 d	1461.00 ± 0.57 d	2111.66 ±1.20 bc
T4	45.26 ± 0.23 a	203.88 ± 1.72 b	419.17 ± 2.35 c	937.23 ± 3.23 b	1521.00 ± 4.16 c	2120.00 ± 4.72 b
T5	45.63 ± 0.15 a	214.40 ± 0.64 b	435.74 ± 0.37 b	926.030 ± 1.40 c	1550.00 ± 0.57 b	2230.333 ± 0.88 ab
T6	45.46 ± 0.28 a	229.26 ± 3.17 a	464.163 ± 1.65 a	1015.17 ± 0.57 a	1605.00 ± 1.15 a	2246.33 ± 1.85 a
Moral level	N.S	*	*	*	*	*

*** If two or more letters appear in a single column, it indicates that the treatment averages at that level differ significantly (p<0.05).:-T1: therapy under control, T2 is for digestivestrum feed (2.5 g/kg), T3 is for probiotic feed (2.5 g/kg), T4 is for digestivestrum feed (5 g/kg), T5 is for probiotic plant feed (5 g/kg), and T6 is for feed (2.5 g/kg; for both digestivestrum + probiotics).**

Weight gain rate

Table (3) shows effect the broiler chickens' weight gain rate is indicated by the statistical analysis results displayed in Table. The experimental treatments that were examined throughout the first week of the study were found to differ significantly from one another. While it was recorded, we see a considerable superiority of the weekly weight gain characteristic favoring the mixture treatment (T6) over the other treatments. (T4 and T5) were considerably different from the other treatments, whereas the control treatment had the least amount of weight increase and was not significantly different from the other two treatments (T2 and T3). In the subsequent week, we notice that the treatments (T4, T3, T2, T1) did not differ significantly among themselves and were average among the treatments in terms of weight gain, while the mixture treatment (T6) recorded the highest weight gain, followed by the fifth treatment (T5), which differed significantly. For the rest of the transactions. As for the third week, we notice that there is a significant difference in the weight gain characteristic of the mixture treatment (T6) compared to the control treatment (T1) and the rest of the experimental treatments, followed by the fourth treatment (T4), while the fifth treatment (T5) recorded the least weight gain, while the control treatment came (T1) is average between the treatments, and the two treatments (T2 and T3) were similar to it and did not differ significantly from the control treatment (T1). In the fourth week of the experiment, we notice that there was a significant superiority in favor of the fifth treatment (T5), followed by the mixture treatment (T6), while the two treatments (T3 and T2) recorded

the lowest rate of weight gain and did not differ significantly between them, but they differed significantly with the control treatment (T1). In the fifth week, the results indicated that the two treatments (T1 and T4) recorded the lowest rate of weight gain and were significantly similar, followed by the second treatment (T2), which was less significant and differed significantly with the rest of the treatments, while the mixture treatment (T6) achieved the highest rate of weight gain over the rest. Experiment transactions The treatment (T5) differed significantly from the third treatment (T3), which did not differ significantly from the second tilt (T2), and the cumulative weight gain characteristic in the mixture treatment (T6) was superior to the rest of the experimental treatments when compared to the control treatment, which recorded the lowest rate in the cumulative weight gain characteristic. which was almost similar to it. From this we conclude that the mixture treatment (T6) was superior, which reached the highest cumulative weight gain and which recorded the highest values for the rate of increase in live body weight during five weeks of the experiment. The reason for the high rate of weight gain in the treatment to which Digeststrom and probiotics were added may be. This indicates that the properties of Digeststrom are... It is antibacterial, anti-inflammatory, antiviral [22], antifungal [23] antioxidant [21], appetite enhancer, and digestive system stimulant [24].

Table (3) effect of adding different levels of digstarom and probiotics and their mixture to the diet on the rate of weight gain of broiler chickens Ross (308) (average ± standard error)

Transactions	Week 0-1	Week 1-2	Week 2-3	Week 3-4	Week 4-5	Cumulative
T1	139.72 ± 0.24 d	214.79 ± 0.30 c	495.35 ± 3.427 c	596.00 ±0.19 e	569.27 ±0.65 d	2015.13 ± 2.41 e
T2	143.67 ± 0.46 d	214.61 ± 0.88 c	497.05 ± 1.46 c	633.34 ± 0.88 d	554.57 ±0.57 e	2043.24 ± 0.602 cd
T3	143.50 ± 0.69 d	216.60 ± 0.68 c	499.68 ±0.67 c	650.66 ± 0.66 b	549.60 ±0.85 e	2060.22 ± 0.811 d
T4	158.62 ± 1.71 c	215.29 ± 0.844 c	518.06 ± 0.94 b	599.00 ±0.57 e	583.77 ±1.01 c	2074.74 ± 5.021 c
T5	168.77 ± 0.58 b	221.34 ± 0.17 b	490.29 ±0.76 d	641.33 ± 1.20 c	623.7 ±0.63 a	2145.43 ± 0.691 b
T6	183.8 ±0.30	234.90 ± 2.44	551.00 ±2.17	680.33 ± 0.33	589.83 ±0.58	2239.86 ±4.088

	a	a	a	a	b	a
Moral level	*	*	*	*	*	*

*** If two or more letters appear in a single column, it indicates that the treatment averages at that level differ significantly (p<0.05).:-T1: therapy under control, T2 is for digestivestrum feed (2.5 g/kg), T3 is for probiotic feed (2.5 g/kg), T4 is for digestivestrum feed (5 g/kg), T5 is for probiotic plant feed (5 g/kg), and T6 is for feed (2.5 g/kg; for both digestivestrum + probiotics).**

Feed consumption rate

Table (4) shows effect impact of varying the amount of digstarom and probiotics in the feed on the rate of feed consumption in broiler chicks is displayed in the table by Ross (308). The statistical analysis's findings showed that the experimental treatments under investigation consumed significantly more feed. During the first week of the trial, the mixture treatment (T6) had the highest rate of feed consumption, significantly outperforming all other treatments and not significantly different from the fifth treatment (T5), which in turn did not vary from the fourth treatment (T4); nonetheless, the treatment with the lowest feed consumption rate was The two treatments (T3 and T2) and the control treatment had nearly significant similarities. The experimental treatments performed much better the next week than the control treatment, which had the least significance. Likewise, there was no appreciable distinction between the T3 and T2 therapies. (T4), the fourth treatment, was almost the same as (T3 and T2), the two treatments with the highest rates of feed consumption. The treatment (T5) was the next best performing treatment, after the mixed treatment (T6). In the third week, there were noticeable differences between the treatments: the sixth treatment (T6) consumed the most feed, followed by the third treatment (T3), while the control treatment (T1) consumed the least feed, followed by treatments T5) and T2which didn't vary all that much between them. Conversely, there was no discernible difference between it and the fourth therapy (T4). In terms of the experiment's fourth week, treatment (T2) recorded the lowest rate of feed consumption, while treatment (T5) recorded the highest rate of feed consumption overall. The combination treatment (T6) was next in line. There was no discernible change between the two treatments (T4) and T3. On the one hand, this is. On the other hand, we found no discernible change between treatment (T3) and control treatment (T1). The fourth treatment (T4) and the control treatment (T1) had the highest feed intake rates in the fifth week, which, in turn, did not significantly differ from the second treatment (T2). Meanwhile, the mixed treatment (T6) outperformed the other treatments and recorded the greatest feed consumption rate. We see that the investigated treatments differ significantly in terms of cumulative feed consumption. The mixture treatment (T6) significantly outperformed the other experimental treatments, recording the highest cumulative feed consumption rate. In contrast, the control treatment (T1) and second treatment (T2) recorded the lowest cumulative feed consumption. There were no discernible variations between the two treatments (T4 and T3). The broiler chicks in the mixture treatment (T6) may have changed their feed consumption because they were able to get enough probiotics, minerals, vitamins,

amino acids, and fatty acids all of which are found in the feed and as a result, their average feed consumption increased. Unlike the chicks in the other groups, who were fed diets with varying concentrations of probiotics and digstrome, for fodder.

Table (4) effect of adding different levels of digstarom and probiotics and their mixture to the diet on the feed consumption rate of broiler chicks Ross (308) (average ± standard error).

Transactions	Week1	Week2	Week3	Week4	Week5	Cumulative
T1	148.0 ±1.00 d	354.66 ±4.80 d	650.33 ±0.88 e	1002.66 ±1.20 d	1059.67 ±1.76 e	3366.32 ± 5.206 e
T2	149.33 ± 0.88 c	376.00 ± 1.00 cd	692.32 ± 0.881 d	982.00 ±1.73 e	1097.67 ± 0.33 c	3463.66 ± 2.33 d
T3	150.00 ± 1.15 c	382.36 ± 0.66 cd	781.39 ±2.02 b	1013.00 ±1.52 cd	1081.00 ± 0.88 cd	3575.75 ± 4.910 c
T4	149.66 ± 1.452 b	386.33 ± 0.33 c	732.00 ± 4.00 c	1019.67 ±1.76 c	1070.33 ±1.20 d	3536.99 ± 6.24 c
T5	155.66 ± 2.72 ab	394.00 ± 0.57 b	721.66 ±2.60 cd	1064.67 ±3.52 a	1110.67 ± 2.08 b	3628.66 ± 6.93 b
T6	168.33 ± 1.20 a	411.33 ± 0.66 a	828.33 ±1.20 a	1033.00 ±1.527 b	1133.00 ± 1.527 a	3762.99 ± 2.081 a
Moral level	*	*	*	*	*	*

*** The presence of different letters in a single column indicates a significant difference ($p<0.05$) in the treatment averages at that level.:-Treatment control (T1), T4: (5g/kg digestivestrum feed), T5: (5g/kg probiotic plant feed), T6: (2.5g/kg feed; for both digestivestrum + probiotics), T2: (2.5 g/kg digestivestrum feed), T3: (2.5 g/kg probiotic feed), and so on.**

Food conversion factor

Table (5) reveals effect the characteristics of the Feed consumption and weight gain rate are correlated with the feed conversion factor. The results shown in Table (4) indicate that there are significant differences between the experimental treatments for the five weeks of the chicks' lives compared to the control treatment. In the first week, there was a significant improvement in favor of the treatments (T5, T4 and T6) over the rest of the experimental treatments, and no significant differences appeared between them, as the lowest value was recorded for the food conversion factor, followed by the control treatment (T1). There were no significant differences between the two treatments (T3 and T2), which recorded the highest value for the factor. food transformation. In the two week, there was a deterioration in the food conversion coefficient

for all experimental treatments, and the improvement was in favor of the control treatment (T1). In the third week, we notice that the significant improvement in the quality of the food conversion factor came in favor of the control treatment (T1), which outperformed the experimental treatments, followed by the two treatments (T4 and T2), which did not differ significantly between them. The two treatments (T5 and T6) also recorded an average value for the food conversion factor, which also did not. They differ significantly from one another, while the treatment (T3) recorded the highest value for the feed conversion factor . In the fourth week of the experiment, we notice a clear significant improvement in the feed conversion factor for the experimental plants (T5, T4, T2, and T6), which did not exhibit any statistically significant differences from one another, and the treatment (T3) that recorded the highest value for the feed conversion factor was different from the control treatment, which did not significantly differ from the other treatments. In comparison to the control treatment, which was similar to the treatments (T4, T2, and T5), where it deteriorated and recorded the highest value, we observe an improvement in the quality of the food conversion factor for the two treatments (T3 and T6) in the fifth week of the studied experiment compared to the other treatments (T4, T2, and T5). To eat for food conversion factor. The table shows that the combination treatment (2.5 g/kg feed for both Digestarom + probiotics) resulted in an improvement in the cumulative feed conversion factor as compared to the control treatment (T1) and the remaining experimental treatments, which did not differ significantly from one another. The feed conversion factor of the chicks in the treatment of the mixture (T6), whose diet contained digstarome and probiotics at a level of (2.5 g/kg/feed for each), improved over the course of the five weeks of treatment. The cumulative feed conversion factor is a measure of the amount of feed utilization and its conversion into live weight. The combined effects of these two compounds may explain the longevity of the chickens, and the active compounds in the digestive system and probiotics known as oleoresin (extracts derived from non-aqueous solvents), cinnamaldehyde, carvacrol, and capsaicin play an important role in influencing the benefit of the consumed feed and improving the health of broilers, which reflects positively on the improvement of the factors.

Table (5) effect of adding different levels of digstrom and probiotics and their mixture to the diet on the feed conversion factor for broiler chickens Ross (308) (average ± standard error) .

Transactions	Week 1	Week 2	Week 3	Week 4	Week 5	Cumulative
T1	1.13 ±0.08 b	1.65 ± 0.03 b	1.31 ±0.06 d	1.76 ± 0.05 b	1.77 ± 0.03 a	1.726 ±0.03 a
T2	1.26 ± 0.75 a	1.75 ± 0.05 a	1.39 ± 0.03 c	1.77 ±0.03 b	1.73 ±0.03 a	1.714 ±0.02 a

T3	1.21 ± 0.03 a	1.76 ± 0.03 a	1.56 ±0.08 a	1.84 ±0.06 a	1.66 ± 0.08 b	1.698 ±0.01 a
T4	1.07 ±0.03 c	1.78 ± 0.05 a	1.41 ±0.04 c	1.74 ±0.03 b	1.78 ±0.333 a	1.704 ±0.02 a
T5	1.00 ± 0.03 c	1.78 ± 0.03 a	1.47 ± 0.02 b	1.75 ±0.03 b	1.76 ± 0.03 a	1.691 ± 0.01 a
T6	1.94 ± 0.03 c	1.75 ±0.03 a	1.50 ±0.08 b	1.70 ±0.03 b	1.63 ±0.03 b	1.65 ± 0.03 b
Moral level	*	*	*	*	*	*

*** The presence of different letters in a single column indicates a significant difference ($p<0.05$) in the treatment averages at that level.:-Treatment control (T1), Digestive strum feed (2.5 g/kg) is T2., T3: (2.5 g/kg probiotic feed), T4: (5g/kg digestivestrum feed), T5: (5g/kg probiotic plant feed), T6: (2.5g/kg feed; for both digestivestrum + probiotics).**

Weight and length of the intestine

Table (6) shows effect the weight and intestinal length of Ross broiler chicks (308) under experimental treatments at 35 days of age are displayed in the Table, which is the outcome of the statistical analysis. In terms of intestinal weight and length, the experimental treatments significantly outperformed the control group, according to the results. When comparing the weight of the intestine to the control treatment (T1), which recorded the lowest weight of the intestine, we find that the weight of the intestine increases in the addition treatments, starting with the second treatment (T2) to the mixed treatment (T6). When it comes to gut length, The results show that the mixture treatment (T6) had a significantly longer intestine than the control treatment (T5), which had the shortest intestine. But from the second treatment (T2) to the fifth treatment (T5), there was no discernible difference in the treatments, nor between the mixture therapy and the control treatment. The significant proportion of intestinal weight and length is ascribed to the functions performed by substances present in both probiotics and digestive tissue because probiotic supplementation has been shown to boost feed conversion, strengthen birds' immune systems, and improve their growth performance through impacts on intestinal function, morphology, and resistance to intestinal pathogens in animal food [25]. Probiotics have a positive effect in improving digestion and absorption, increasing digestion and increasing intestinal efficiency as a result of the availability of nutrition Measurements of weight gain have also shown variable results as a known dose-dependent response has been detected in broilers receiving probiotic powder by different researchers [26]. These results were consistent with the findings of [27] that there was a significant improvement in the weight and relative

length of the small intestine and in the jejunum and ileum in broilers that ate feed containing probiotics from one day old compared to the control treatment, but these results differed with what It was noted by researcher [28]. that there were no significant differences in the weight and relative length of the small intestine and its parts in broilers fed with feed containing probiotics compared to the control. While these results differed from the findings of [29]. when they noted that there were no significant differences in the total length of the small intestine, its three parts, and the cecum in broilers fed with feed containing probiotics compared to the control treatment. The researchers explained that the improvement in weight and relative length of the small intestine and its parts may be due to the close connection between body weight and the total length of the small intestine.

Table (6) effect of adding different levels of digstarom and probiotics and their mixture to the diet on the weight and intestinal length broiler chickens of Ross 308 (average ± standard error).

Transaction	Intestine length/ cm	Intestine weight /g
T1	250.82 0.53 ± b	6.85 0.07 ± b
T2	253.97 0.253 ± ab	7.03 0.13 ± a
T3	256.18 0.54 ± ab	7.12 0.06 ± a
T4	257.72 0.136 ± ab	7.19 0.01 ± a
T5	258.63 ±0.171 ab	7.29 0.08 ± a
T6	260.02 ±0.275 a	7.63 ±0.03 a
Moral level	*	*

*** If two or more letters appear in a single column, it indicates that the treatment averages at that level differ significantly (p<0.05).:-T1: therapy under control, T2 (digestive strum feed, 2.5 g/kg), T3: (2.5 g/kg probiotic feed), T4: (5g/kg digestivestrum feed), T5: (5g/kg probiotic plant feed), T6: (2.5g/kg feed; for both digestivestrum + probiotics) .**

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