



Impact of adding different levels of Iraqi probiotic on the relative weight and length of the small intestine of Chinese white ducks.

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Abstract:

This study was conducted in one of Private fields for ducks rearing at Samawa city, from 14 December 2021 to 10 February 2022. 75 1 day, 42 gm, Pekin duckchicks were used, were brought from Diwanayah local markets, put at a closed house and divided into a group of pens, 4 treatments in addition to the control, the one treatment contain 3 replicates, and each replicate had five birds. Experimentale treatments were: T1: control (no additive). T2, T3, T4 and T5 were adding the Iraqi probiotic at a rate of 2.50, 5.00, 7.50 and 10.00 gm per kg of diet. Results indicated T5 was an increase in the percentage of both weight and length of the small intestine in all its parts occurred in the treatment compared to the control treatment.

Keywords: Iraqi probiotic, relative weight, relative length, small intestine, Chinese white ducks.

Introduction:

The Iraqi probiotic has become widely used in animal production fields, this probiotic was recently called Direct Feed Microbes (DFM), because it contains many types of microorganisms that are beneficial to the health of animals and increase their production (Naji *et al.*, 2011; Al-Gharawi *et al.*, 2018; Al-Gharawi and Ebade. 2020).

In recent years, the results of the Iraqi scientific effort have become clear through the results obtained as a result

of using the Iraqi probiotic in the diets of various poultry birds, or through early feeding of chicks, or injecting hatching eggs with Iraqi probiotics, and this has been reflected positively on the productive performance of various birds (Al-Husseini, 2009).

Modern probiotic manufacturers have turned to manufacturing water-soluble probiotics in order to open up areas for their use in feeding suckling calves and suckling sheep, adding them to water in poultry fields or injecting them into hatching eggs. In line with this global

trend, the Iraqi probiotic has been modified. The product was mixed with some additives and turned into a water-soluble probiotic, becoming the first Iraqi soluble probiotic manufactured inside Iraq (Naji *et al.*, 2011; Al Salman and Al-Gharawi, 2019). The dissolved Iraqi probiotic was manufactured by growing the beneficial microbes involved in the formulation of the probiotic on liquid culture media or broth, the biomass of the microorganisms was then precipitated when the liquid was transferred to test tubes and centrifuged in a centrifuge at a speed of 10,000 rpm for 15 minutes. as the mass of microbial cells will settle at the bottom of the container, then the microbial biomass is dried, followed by the step of adding powdered milk to the biomass for the purpose of increasing its size first and to facilitate and accelerate the drying process second, then sugar and a mixture of water-soluble vitamins are added to them (Naji *et al.*, 2011; Al-Gharawi *et al.*, 2018).

The current study aims to determine the effect of different levels of the Iraqi probiotic on the relative weight and length of the small intestine of Chinese white ducks.

Materials and Methods:

This study was conducted in one of Private fields for ducks rearing at Samawa city, from 14 December 2021 to 10 February 2022. 75 1 day, 42 gm, Pekin duckchicks were used, were brought from Diwanayah local markets, put at a closed house and divided into a group of pens, 4 treatments in addition

to the control, the one treatment contain 3 replicates, and each replicate had five birds. Experimentale treatments were: T1: control (no additive). T2, T3, T4 and T5 were adding the Iraqi probiotic at a rate of 2.50, 5.00, 7.50 and 10.00 gm per kg of diet.

Small intestine length measurements were taken for 2 birds for each treatment at 8 weeks of age after slaughtering them and extracting their intestines, and the intestines were separated at the area where they connect to the gizzard. Parts of the small intestine (duodenum, jejunum, and ileum) were measured using a metric scale (Al-Hayali, 2004).

Parts of the small intestine (duodenum, jejunum, and ileum) were measured, using a metric scale, each part individually. (Relative Weight RW) and (Relative Length RL) of Intestine in relation to the weight of the living body were calculated. Weighing was done with an electronic scale sensitive to 3 decimal places (572Coraine Turkish), then calculated the relative weight based on Al-Hayali (2004).

Results and Discussions:

The effect of adding different levels of the Iraqi probiotic in the diet on the relative weight of the small intestine parts of Peking ducks (Table 1), the table indicates a rise on the smallintestine and duodenum RW at T5 treatment compared to the other treatments, with a significant increase in the relative weight of the Jejunum in T3, T4, and T5 treatments compared to other treatments, with no significant

differences between treatments T3, T4 and T5 on the one hand, and no significant differences between coefficients T1 and T2 on the other hand. As for the relative weight of the ileum, no significant differences

appeared among all treatments, except for the appearance of a significant decrease in treatment T2 compared to the rest of the treatments in the experiment.

Table (1) Effect the Iraqi probiotic on relative intestinal weight of Peking ducks.

| Treatmnts | Relative weight | | | |
|-----------|-----------------|--------------|-------------|-----------------|
| | Dodenum | Jejunum | Illum | Small intestine |
| T1 | 0.006±0.63c | 0.058±1.94b | 1.89b±.0100 | ±4.47c .0760 |
| T2 | 0.001±0.629c | 1.96ab±.0060 | 1.87b±.0020 | 4.46c±.0100 |
| T3 | 0.004±0.662b | 2.05a±.0310 | 1.92a±.0110 | 4.63b±.0470 |
| T4 | 0.0005±0.671b | ±2.06a .0050 | 2.06b±.0010 | 4.61b±.0070 |
| T5 | 0.003±0.884a | ±2.06a .0050 | 1.88b±.0010 | ±4.83a .0100 |
| Sig. | * | * | * | * |

Impact of adding Iraqi probiotic to diet on the smalintestine and parts LW (Table 2), it indicates a rise on the smalintestine RL at T5 compared to other treatments, which differed among themselves in this characteristic in a significant manner. As for the relative length of the duodenum, it was significantly higher ($P \leq 0.05$) in T5 treatment compared to other treatments, which differed among

themselves in a significant manner in this characteristic. As for the jejunum RL, significant increase was in favor of (T4, T5) compared to others with no differ, and significant differences appearing (T1, T2 and T3). As for the ileum RL, the significant increase was in favor of treatment T5 on others, which differed significantly among themselves in the relative length of the ileum.

Table (2) The effect of adding different levels of the Iraqi probiotic on the relative intestinal length of Peking ducks.

| Treatmnts | Relative weight | | | |
|-----------|-----------------|--------------|--------------|-----------------|
| | Dodenum | Jjunum | Illum | Small intestine |
| T1 | 0.006±1.45c | 0.017±5.56b | 4.24d±0050. | 11.264d±0290. |
| T2 | 0.006±1.48b | 5.60b±0230. | 4.30c±0010. | 11.383c±0310. |
| T3 | 0.005±1.4860b | 5.61b±0050. | 4.32bc±0050. | 11.416c±0160. |
| T4 | 0.008±1.4967b | 005 ±5.68a0. | 4.33b±0060. | 11.508b±0190. |
| T5 | 0.005±1.8200a | 5.71a±0060. | 4.44a±0070. | 11.975a±0190. |
| Sig. | * | * | * | * |

The results of this study agreed with what was indicated by Chaing *et al.* (2012), when they noted the

appearance of a significant improvement in weight and relative length in the smalintestine and parts

(dodenum, jejunum, and ileum) RL when birds were fed diets containing the probiotic compared to the control treatment, and this was interpreted as being due to increase the weights of birds and this is linked to the weights and lengths of their small intestine compared to the weights of lighter birds, in which the weights and lengths of the small intestine and its parts are less (Samuel et al., 2012).

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