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Short Articles

Study the difference in a carcass and the relative weight of the Molar, White Pekin and Brown Iraqi local duck carcass parts.

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ABSTRACT

The existing experiment was intended to explore differences among three breeds of duck, Molar, White Pekin, and Brown Iraqi local duck**,** in carcass traits and some organs. Thirty ducks (n= 10 of each breed) were reared at age 2 months in an open scheme for 8 weeks. At the end of this period, before and after slaughter, the weight of all ducks had taken. The carcass, thighs, back and neck, wings, and breast were estimated by balance. Then, some slaughter organs, heart, liver, and gizzard were weighed. The statistical analysis of current data showed a significant ($P \leq 0.05$) raising in live body weight (LBW) in molar ducks compared with other breed ducks. On the other hand, the results of carcass traits recorded a significant ($P<0.05$) increment in wings percentage in molar ducks compared with White Pekin and Brown Iraqi local ducks. Also, the statistical examination verified a significant ($P<0.05$) increment in heart and gizzard percentages in molar ducks compared to other breeds. The regression equations were also verified for determining live body weight by slaughter traits in three breed ducks. Concluded that there are differences among Molar, Pekin, and Brown Iraqi local ducks in live body weight and carcass weight, as well as weights of some organs; also improved significantly in Molar ducks comparison with White Pekin and Brown Iraqi local ducks.

Keywords: Ducks; slaughter; breed.

INTRODUCTION

Domesticated ducks include all kinds and are an essential source of high protein quality in human consumption [1]. The Molar duck is a wild bird belonging to the species of domesticated ducks and has become one of the most critical and widespread bird species in the world, especially in Europe. However, its origin remains vague. It is one of the essential duck species, considered an environmentally and economically significant bird for wild bird species, and has a high capacity to grow [2]. Duck meat is an important source the broad nutrition of the world's population because it has a high content of nutrients, compared to chicken meat; if duck meat contains a high percentage of the protein and mineral elements, a small percentage of fat, and a high content of reds muscles fiber in the chest meat [3] and a high content of fatty acids and amino acids available to build

body cells [4] . Duck meat with the best production of white bikini ducks in Asia and northern Europe, the least of which is the production of Muscovy duck meat and generators in France and Italy [5]. Meat-producing duck strains are, among them, fast-growing breeds to match genetic selection, optimal breeding system, high nutrient attics, high nutritional conversion efficiency, and high growth rate during breeding [6], White Pekin ducks and Muscovy with the highest growth rate between ages 6 and 8 weeks, which is the fastest growth rate and a weight rate of approximately 3.5 kg [7]. The current production of duck meats has become a concentrated business in recent decades. The production system is compatible with the development of providing ducks with adequate living and producing good meat quality, as the difference in the duck production system has become dependent on a difference in the type of ground, the density of birds and the drinking system, access to water for swimming or access to the outside and lighting system and its impact on the living of ducks, growth behavior, the weight of carcass and quality of meat [8]. However, the high breeding density of ducks reduces growth behavior and bird health.
However, this study is essential, which deals with the study of differences in living body weight, carcass weight, and relative weight of carcass pieces between the types of molar ducks, white Pekin, and local brown duck in which the same attic and environmental conditions were used during the two-month breeding period.

MATERIALS AND METHODS

Thirty ducks of Molar, White Pekin and Brown Iraqi local ducks at age 2 months were reared at Karbala University/ Agriculture collage / Animal Production department from 13/9/2021 to 13/ 11/2022. The ducks were raised in an open system and supplemented with water and diet. The animals were fed identical diets formulated to meet ducks' maintenance and growth requirements (National Research Council (NRC,1994). The feeding program consisted of a starter diet until 1- 21 days continua (Crude protein 22,07% and metabolizable energy (ME, kcal/kg diet) 2890.45 kcal/kg diet) and a Finisher diet until 22-56 days continua (Crude protein 16,02% and metabolizable energy 2950.75 kcal/kg diet) of age.
After age 2 months, all ducks are weighted, and then all ducks are slaughtered. The weight of thigh, wings, carcass, back and neck, gizzard, breast, liver, and heart was measured, and the percentage weight of wings, breast, carcass, gizzard, thigh, heart, and liver. Also, the equations of the regression were calculated. Statistical analysis of The present data was tested by analyzing variance (SAS, 2001). Significant changes among groups were verified via Duncan's test at 5%.

RESULTS

Table (1) indicates moral differences ($P<0.05$) in the rate of living body weight of the molar duck at the age of four months compared to other types of ducks, White Pekin and Brown Iraqi local duck, with the live weight rate of molar ducks being 1834.0 g and followed by the live weight rate of bikini ducks 1779.0 g and followed by the local brown duck weight rate of 1494.0 g, respectively. However, we did not find moral the differences in the weight rate of the carcass between the types of ducks, as the rate of weight of the carcass of the molar duck**,** White Pekin and Brown Iraqi local duck **1337.0**, 1242.0 and 1138.0 g, respectively, the high live weight rate of the molar duck may be due to having the best behavior in improving the efficiency of dietary conversion and the rate of weight increase compared to White Pekin and Brown Iraqi local duck,

Strains	Living body weight (g)	Carcass weight (g)

Molar ducks	1834.0 a ± 72.42	1337.0 ± 60.42
White Pekin ducks	1779.0 b ± 67.64	1242.0 ± 67.72
Brown Iraqi local ducks	1494.0 c ± 51.57	1138.0 ± 56.16
Significant	0.05	NS

[1] Tables -The Data represent means ± standard error.
-The different letters in the similar column indicate significant changes at level (P≤ 0.05).
- NS: not significant.
Table 1. Comparative study of three strains of ducks in the live body weight (g) and carcass weight (g).

For Table (2), We also note moral differences (P<0.05) in the ratio of carcass to live weight of molar ducks compared to other duck species. At the same time, we did not find moral differences between Pekin and Brown Iraqi local ducks, as the carcass's weight rate for molar ducks, White Pekin and Brown Iraqi local ducks (72.7, 0.695 and 66.6%), respectively. This is due to the high rate of the living weight of the molar ducks during the breeding period, which led to a higher percentage of carcasses compared to other types of ducks.

Strains	Carcass %	Thighs %	Wings %	Back and Neck %	Breast %
Molar ducks	72.7 a ± 0.008	14.3 ±0.008	11.0 ± 0.003	25.3 ± 0.008	23.5 ±0. 007
White Pekin ducks	69.5 b ± 0.001	13.8 ± 0.003	10.2 ± 0.001	24.3 ± 0.004	20.4 ±0. 001
Brown Iraqi local ducks	66.6 b ± 0.002	0.140±0.006	10.7 ± 0.004	24.0 ± 0.007	20.9 ± 0.004
Significant	0.05	N			S NS NS NS

[2] Tables - Data represent means ± standard error.
- The letters in the similar column indicate the significant changes in a level (P≤ 0.05).
- NS: not significant.
Table 2. Comparative study of three strains of ducks in carcass (%) and relative weight of carcass parts.

For Table (3), we also note a molar increase (P<0.05) in the relative weights of the eaten pieces (heart, liver and gizzard) of molar ducks compared to other duck species, White Pekin and Brown Iraqi local ducks, as there was a moral rise in The relative weight of the heart in the molar ducks compared to other types of ducks in the study, where the relative heart weight of the molar duck White Pekin and Brown Iraqi local ducks (0. 80, 0. 68 and 0. 65% respectively), As for the relative weight of the liver, it increased in the molar ducks compared to other birds, with the relative weight of the liver of the molar duck White Pekin and Brown Iraqi local ducks (2.7, 2.0 and 2.3%), respectively, and for weight. Relative to the gizzard increased in the molar ducks compared to other birds, as the relative weight of the sniper for molar ducks, White Pekin and Brown Iraqi local ducks (3.7, 3.0 and 2.7%), respectively, While we did not find moral differences in the relative weights of the eaten pieces between White Pekin and Brown Iraqi local ducks at the end of the study.

Strains	Heart %	Liver %	Gizzard %
Molar ducks	0.80 a ± 0. 003	2.7 a ± 0.009	3.7 a ± 0.001
White Pekin ducks	0.68 b ± 0. 002	2.0 b ± 0.003	3.0 b ± 0.002
Brown Iraqi local ducks	0.65 b ± 0.001	2.3 b ± 0. 0005	2.7 b ± 0.003
Significant	0.05	0.05	0.05

[3] Tables - Data represent means ± standard error..
- The letters in the similar columns indicate a significant change at level (P≤ 0.05).
Table 3. Comparative study of three duck strains in the edible viscera's relative weight (%).

DISCUSSION

The ability of molar ducks to produce a high amount of fat in the body nutrients leads to the development of body mass and a remarkable ability to adapt to environmental conditions and nature, which is a major cause of the significant increase in body weight [9]. On the other hand, it was found that the White Pekin and Brown Iraqi local duck is characterized by a low food conversion efficiency, which leads to a decrease in the average live body weight during the breeding period, and this reason shows the superiority of molar ducks in the live weight rate compared to other duck species [10]. In another study, he indicated that the percentage of live weight of ducks Pekin rises, and this depends on factors such as sex, genetic factors, and sex-related genes that cause an increase in body weight for ducks and that affect the strain in vivo weight and carcass weight [11]. In another study, it was suggested [12] that the absorption rate of nutrients decreases in White Pekin ducks when fed an excessive or excessive diet. This moral improvement of the molar ducks may be due to the ability of the molar ducks to produce a high amount of fat in the body, subcutaneous and wing, which leads to the development of body mass and rapid growth, especially during the period of growth, which is a major cause of the significant increase in body weight [9]. However, we did not find moral differences in the measurements studied, including the percentage of breast, wing, back, neck and thighs between the duck's molar, White Pekin and Brown Iraqi local ducks. However, we found a mathematical rise in readings of these qualities studied for molar ducks compared to White Pekin and Brown Iraqi local ducks. This development in the relative weights of the eaten pieces of molar ducks compared to the White Pekin and Brown Iraqi local ducks may be due to the high rate of living body weight of the molar duck, which requires an increase in the weight of these pieces to suit the high body weight to equip it with the nutrients necessary for growth, especially since a molar characterizes the molar duck increased in the weight of the leg muscle and wing, as well as increased in the fat rate in the skin and muscle tissues with age compared to the types of ducks [13]. These pieces are also characterized by rapid growth after hatching chicks and during growth because they provide the nutrients necessary to grow and utilize the body's muscles [14]. In addition to muscle tissues, they develop before skeletal tissue and are an influential factor in the development of the skeletal rate [15].

CONCLUSIONS

This research showed differences among Molar, White Pekin, and Brown Iraqi local ducks in the live body weight, carcass weights, and weights of some organs. Also, it improved Molar ducks significantly compared with White Pekin and Brown Iraqi local ducks. In the future, numerous investigations are required to estimate differences in ducks' reproductive traits among these breeds.

Author Contributions: A short paragraph specifying their contributions must be provided for research articles with several authors. The following statements should be used: "Conceptualization, Salam Altaie; methodology**,** Salam Altaie. Moreover, Salah Gatea; validation, Thamer ALjanabi; formal analysis, Salam Altaie.; investigation, Nihad Nafel.; resources, Salah Gatea.; data curation, Salam Altaie.; writing—original draft preparation, Salah Gatea.; writing—review and editing, Salah Gatea.; visualization, Sura Khafaji and Nihad Nafel.; supervision, Salam Altaie.; project administration, Thamer ALjanabi.

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