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A COMPARATIVE STUDY OF PRODUCTIVE AND PHYSIOLOGICAL PERFORMANCE BETWEEN TWO LOCAL STRAINS OF CHICKS

By

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Abstract: *The present work was carried out to evaluate and compare the productive and physiological performance and carcass traits of two local strains of chicks. Also, to find out the relationship among the studied traits.*

A total number of 450 one – day old chicks from each of Silver Montazah (S.M) and Matruoh (MAT), strains (210 males and 240 females) were randomly divided into four experimental groups.

The main results could be summarized as follow:

- *Silver Montazah chicks had significantly higher live body weight (LBW) than MAT chicks at 4 and 12 wk of age, while at hatch and 8 wk of age the difference was not significant.*
- *Body weight gain (BWG) of S.M chicks was significantly higher than MAT chicks at all studied periods (0- 4, 8-12 and 0-12 wk of age) except during the period from 4-8 wk of age, In addition, males LBW and BWG of each strain were significantly higher than females.*
- *Matrouh chicks strain consumed significantly lower amounts of feed than that of S.M chicks during all studied periods and the males of each strain consumed significantly more feed than their females.*
- *Feed conversion was significantly better for S.M chicks than MAT ones during the period from 8-12 weeks of age, while it was approximately equal for both strains and sexes during the rest of the experimental periods.*
- *Small intestinal length of S.M chicks was significantly longer than that of MAT chicks, while the opposite was true for liver relative weight. While, sex effect was significantly appeared in small intestine length and both liver and Giblets relative weights.*
- *Plasma calcium (Ca) and triiodothyronine (T3) hormone as well as blood hemoglobin (Hb) concentrations were significantly higher in S.M*

than MAT chicks and the opposite was true for plasma globuline (Gl). Meanwhile there were no-significant differences in plasma phosphorus (P), total protein (T.P) and albumin (Al) were observed.

- *Correlation coefficient values among LBW and carcass traits were positive and highly significant in both strains. Similar results were obtained for correlation among LBW and studied blood estimates for MAT strain. While this correlation was significant and positive only for blood Hb, T3 and phosphorus in S. M strain. Therefore, the present results indicate that S.M chicks were better in growth rate, thus it can be used for rearing by the small holders in the Egyptian villages.*

INTRODUCTION

Intensive poultry production in Egypt depend not only on commercial hybrids but also on local strains of chickens during the last three decades. Serious efforts have been done to improve the performance of these strains through continuous selection under different environmental conditions (Younis and Abd El-Ghany, 2003).

Numerous investigators proved significant differences between some local strains in body weight and rate of growth at different ages (Younis and Abd El-

Ghany, 2003) in Salam, Mandara, Silver Montazah and Gimizah, (El Kaiaty and Hassan, 2004) in Fayoumi, Goldan Montazah and Matrouh, (Habeb, 2007) in Matrouh and Inshas. Furthermore feed intake (El- Sayed *et al*, 2001 and Hassan *et al.*, 2006) and feed conversion (Younis and Abd El-Ghany 2003, and Habeb 2007) were also significantly different.

Regarding the effect of strain on some blood constituents, some investigators revealed a significant differences between some local strains of chicks (El- Kaiaty and Hassan, 2004, Hassan *et al.*, 2006, Habeb, 2007 and Farahat *et al*., 2009).

Significant differences between breeds and strains for carcass traits were reported by some workers (Singh *et al*, 1983, El-Labban, 1999, and Habeb, 2007).

Some investigators found significant phenotypic correlation between body weight and each of carcass traits and some blood constituents (Abdel Gawad and El- Ibiary, 1972, Zaidan, 1977, El- Labban 1999 and Ezz Eldin *et al*. 1991). They reported that these high correlations may be attributed to the pleiotrophic effects of the genes and linkage effects and consequently

performing phenotypic selection in any of the two traits may lead to the improvement in the other trait.

Therefore, the present study was carried out to evaluate and compare the productive and physiological performance for two local strains of chicks (Silver Montazah and Matrouh) during the growing period.

MATERIALS AND METHODS

The present study was carried out at Inshas Poultry Breeding station, Animal Production Research Institute, Agricultural Research Center. A comparative study was conducted to compare between chicks of two Egyptian developed strains (Silver Montazah and Matrouh).

Birds and experimental design:

A total number of 450 sexed one day old chick of each strain Silver Montazah and Matrouh (210 males and 240 females) were used in this experiment. All chicks were wing banded, individually weighed and distributed into four experimental groups. The first and second groups were females (G1) and males (G2) of Silver Montazah strain (S.M), whereas the third and fourth groups were females (G3) and males (G4) of Matrouh strain. Each group of both strains have three replicates (70 males and 80 females each).

Management and feeding

All chicks were maintained under similar environmental conditions and exposed to 24 hours light during the first two days of age and to natural day light till 12 weeks of age. Feed and water were available *ad libitum* throughout the whole experimental period (12 weeks). Birds were fed starter diet from 0 to 4 weeks of age and then switched to grower diet from 4-12 weeks of age (Table 1).

Measurements:-

Growth performance:-

- Individually live body weight (LBW) was recorded at hatch, 4, 8 and 12 weeks of age. Body weight gain (BWG) was calculated every 4 weeks intervales.

- Feed intake (FI) was recorded at three intervals (0-4, 4- 8 and 8-12 weeks) and accumulated FI (0-12 wk of age) was calculated for each experimental group .Feed conversion (FC) was calculated as g feed/g gain for the same experimental periods.

Blood constituents:-

At the end of the experiment (12 wk) six birds from each sex within each strain were randomly chosen to collect blood samples. The birds were individually weighed and slaughtered. Blood samples (5 ml) were collected during exsanguinations into heparinized test tubes. A small amount of the fresh blood samples (1 ml) was taken to determine blood hemoglobin (Hb), the rest of the blood samples were centrifuged at 3000 rpm for 15 minutes. Plasma was separated and stored at - 20ºC until assayed for total protein (T.P), Albumin (Al), Calcium (Ca) and Phosphorus (P) levels which determined calormetrically by using commercial diagnostic kits. Plasma triiodothyronine (T3) level was assayed by RIA technic. Plasma globuline (Gl) was calculated by the difference between T.P and Al.

Carcass traits

All slaughtered chicks were feather removed and manully eviscerated .The birds were weighed after removing heads, legs and viscera to determine the percentage of carcass weight. The heart, liver and empty gizzard were weighed and their percentages to LBW were calculated. Small intestine length was measured.

Statistical analysis:

The obtained data were statistically analyzed using the general linear model of SAS program (SAS, 1998) and differences among means were tested using Duncan's multiple range test (Duncan. 1955). Correlation coefficient among all the studied traits were determined using the procedure CORR (SAS, 1998).

RESULTS AND DISCUSSION

1. Productive performance:

1.1- Live body weight and body weight gain:

The results of live body weight (LBW) and body weight gain (BWG) of Silver Montazah (S.M) and Matrouh (MAT) chick strains from hatch to 12 wks of age are presented in Table (2).

On the overall mean bases, it could be observed that there were no significant difference in LBW between the two strains at hatch and 8 weeks of age. On the other hand, at 4 and 12 weeks of age, S.M chicks were significantly ($P \leq 0.01$) heavier in LBW than MAT ones by about 12 and 13.3% respectively.

However, there were a significant difference in means of LBW between strains and sexes at all studied ages (except LBW of females at hatch). Where, either male or female chicks of S.M strain recorded heavier LBW than their counterparts of MAT chicks at all studied ages, except at the 8^{th} wk, male chicks of MAT strain had significantly ($P \leq 0.01$) higher LBW than their fellows of S.M ones. Body weight differences were reported by Saleh *et. al* (1994) in 12 native strains, Younis *and* Abed-Ghany (2003) in four local chicken strains, and Kosba and Abd El- Halim (2008) in 14 local strains.

Regarding the overall mean of BWG, Table (2) showed that MAT strain was higher in BWG than that of S.M strain only during the period from 4 – 8 wk of age, while S.M strain gained more weight than those of MAT ones during the periods of 0 – 4, 8 -12 and 0 – 12 wk of age. In general, S.M strain exceeded MAT strain by about 14% in BWG within the whole experimental period. Similar results were obtained by Iraqi *et al.* (2000) in Silver Montazah and Matrouh strains, however, the authors decided that this may be due to the Silver Montazah strains originated from crossing Rhode Island Red (as dual purpose breed) males with Dokki-4 females, while MAT strain originated from crossing White Leghorn (as egg-type breed) males with Dokki-4 females (Mahmoud *et al.,* 1974 a and b). Also, as seen in LBW, similar trend was obtained in means of BWG.

Whereas, there was a significant ($P \leq 0.01$) increase in means of BWG within the periods of 0 – 4, 8 – 12 and 0 – 12 weeks of age mostly in favour of S.M chicks either males or females when compared with their fellows of MAT chicks (Table 2).

On the other hand, MAT male chicks revealed a significant ($P \leq 0.01$) increase in BWG compared with S.M males within only the period from 4 – 8 weeks of age, while, within the same period the difference in BWG between the female of both strains was not significant. This may be due to the fast growth which happened during that period (4-8 weeks of age) in both strains.

Strain differences in LBW and BWG were reported by Younis *and* Abd El-Ghany (2003) in four local chicken strains and by Habeb (2007) in Inshas and Matrouh chicks during the growing period. It could be seen that growth pattern is not similar for these strains during growing period. Furthermore, LBW records in the present study were lower than those reported in previous studies (Younis and Aabd El- Ghany, 2003, Abou El-Ghar *et al.,* 2007) and higher at 12 wk of age than those reported by Habeb (2007) and approximately equal to those reported by Iraqi *et al.* (2000).

1. 2- Feed intake and feed conversion

The average amounts of feed intake (FI) per chick during the experimental period are present in Table (3).

As regards to the overall means of FI, it is obvious that the amount of feed consumed by S.M chick was significantly ($P \leq 0.05$) higher than MAT ones either through all the experimental periods studied (0 – 4, 4 – 8 and 8 -12 wk) or during the whole experimental period (0 -12 wk). The difference between them reached about 327.5 g in average. In the same manner, it could be observed that the amounts (as means) of feed consumed (within each experimental period) by male and female of S.M chicks were significantly ($P \leq 0.05$) higher than that consumed by their counterpart of MAT ones. This is a logic result because S.M birds are heavier in LBW than MAT birds and it's well known that the heavier strains consume more feed than lighter ones due to increasing their maintenance requirements. In this respect, El- Hossari and Dorgham (1992) reached to the same conclusion. Also, differences in FI were reported by many investigators El- Kaiaty and Hassan, 2004; and Hassan *et al.*, 2006).

Concerning feed conversion (FC), it is clear from Table (3) that there were no significant strain and sex differences in FC during all studied periods except, within the period from 8 -12 wk of age. The overall mean of FC for S.M strain was significantly ($P \leq 0.05$) better (4.28 g feed/g gain) than MAT strain (5.24g feed/g gain). This means, that S.M strain was more efficient in converting the feed to growth during that period of age. Generally, the overall mean of FC for S.M strain was slightly better than MAT strain during the whole experimental period, but the difference was not significant. The non-significant differences between local trains for feed conversion during the growing period were also obtained by Elawa (2004) and Habeb (2007) in Inshas and Matrouh local chick trains.

2. Carcass traits

Results in Table (4) showed a significant strain differences only in liver percentage and small intestine length. Where, MAT strain had significantly ($P \leq 0.01$) higher liver percentage than S.M chick strain, meanwhile S.M chicks had significantly ($P \leq 0.01$) longer small intestine than MAT ones (125 vs 115.8 cm). These findings are in agreement with the results of Elawa (2004) and Habeb (2007) who obtained a significant difference in small intestine length between two strains of local chickens

(Inshas and Matrouh) at 13 and 12 weeks of age, respectively. It could be observed that. The increase in the length of small intestine of S.M chicks

was related with an increase in LBW and BWG and somewhat to the improvement in feed conversion (0-12 weeks) for the same strain (Tables 2 and 3). However, this result was explained by Smith *et al* (1990) and Iji *et al*, (2001) who stated that the increase in small intestine length may be increased absorption surface area which increased the absorptive capacity for nutrients from small intestine which in turn increased BW and improved feed conversion efficiency.

On the other hand, there were no significant differences between S.M and MAT chicks in the overall means of percentages (%) carcass, heart, gizzard and total giblets, which is confirmed by El-Labban (1999) who found that the percentages of carcass traits were nearly equal in males of S. M and MAT strain chicks.

Table (4) shows a significant differences between S.M males and MAT females in liver and giblets percentages as well as small intestine length.

The small intestine of males and females of S.M strain were significantly ($P \leq 0.05$) longer than their counterparts of MAT strain.

Generally, females of S.M strain recorded the superior value for small intestine length over their males and each of the two sexes of MAT strain. Meanwhile, MAT females, showed a significant increase in each of liver and giblets percentages over S.M males and non-significant increase than their males and S.M females.

In this respect, some authors reported significant sex differences in some carcass trait between chicken of some local strains at different ages (El-Soudany, 2000 and Habeb, 2007).

3- Some blood constituents

Means of some blood estimates are shown in Table (5). On the overall mean base, in general it could be noticed that some blood constituents significantly affected by strain difference. Silver Montazah strain chicks had significantly ($P \leq 0.01$) higher plasma Ca, T3 hormone and blood Hb concentrations than MAT chicks, Conversely, MAT chicks had significantly ($P \leq 0.01$) higher plasma Gl level than S.M chicks.

On the other hand, there were no appreciable differences could be detected between the two strains in each of plasma P, T.P and AL concentrations.

A significant differences between local strains for serum concentrations of Ca, Gl and T3 hormone were reported by El- Kaiaty and Hassan (2004) for serum Gl and T3 hormone levels in fayoumi, Golden Montazah and Matrouh female chicks. Also, Hassan *et al* (2006) obtained a significant difference in serum Ca and Gl concentrations between S.M, MAT and EL- Salam chicks. At the same time the same authors found that there were no significant differences between some of the previous chick strains in serum P, TP and AL levels which in agreement with the present results. Also, Habeb (2007) found no significant differences in plasma TP between Inshas and MAT chicks strains. The results of blood Hb levels are in accordance with those reported by El- Menshawy (2003) and Farahat *et al.* (2009) who found that blood Hb content of different strains was significantly different.

Regarding sex differences in blood estimated parameters, the results of Table (5) showed that female chicks of S.M strain exhibited the highest value for plasma Ca, while male chicks of the same strain (S.M) recorded the higher concentration of plasma T3. At the same time each sex of S.M strain chicks had significantly higher plasma T3 concentration than its counterpart of MAT strain chicks. Regarding blood Hb and plasma Gl, there were no significant differences between both sexes within each strain. But the highest values of plasma Gl was recorded by MAT male, while the lowest value was recorded by males of S.M chicks. On the other hand, the highest

value of blood Hb was recorded by S.M females, while the lowest was recorded by MAT females. Also, there were no significant differences could be detected neither within nor between the two strains, in P, T.P and Al concentration.

From the present results, it could be noticed that S.M strain chicks had significantly higher plasma T3 which accompanied by significant increase in LBW and BWG than MAT strain. This is a logic result where, T3 hormone is an essential hormone for metabolic activities and its level in the blood may be positively related with the high growth rate in S.M chicks rather than MAT chicks.

4. Correlation coefficients

Correlation coefficients among LBW and some carcass traits for each strain separately are presented in Table (6). It is obviously clear that, there were a highly significant positive correlation coefficients between LBW and each of Giblets, liver, gizzard, heart, carcass and small intestine

length in both S.M and MAT strain chicks at 12 wk of age. Moreover, a highly significant positive correlation coefficients were also found between all studied carcass traits each others in the two strains. However, both strains showed approximately similar values and trends for phenotypic correlations, from one side between LBW and carcass trait and from the other side between carcass traits each others. The results regarding LBW and carcass traits are closely similar to that reported by El- Labban (1999).

The significant correlation coefficients may be attributed to the pleiotrophic effect of the gene and linkage effect (El- Labban, 1999), the same author added that, therefore, phenotypic selection in any trait may lead to improve the other trait.

From the present results it could be observed that the both studied strains had the same trend for the correlation coefficients between LBW and carcass traits and between carcass traits each others, therefore, it could be concluded that there were no differences between both strains in this respect. Then, phenotypic selection could be carried out in the two strains to improve the previous traits.

Correlation coefficients between LBW and some blood parameters as well as among blood parameters each others are shown in Table (7). It could be noticed that both strains S.M and MAT chicks had similar trend in most correlation coefficients estimates. Generally there were a significant positive correlations between LBW and all blood parameters studied (T.P, Al, Gl, Ca, Ph, Hb and T3) in MAT strain, while in S.M strain this correlation was significant between LBW and blood Ph, Hb and T3 only. In this respect Abdel Azim and Farahat (2009) reported significant correlation between body weight and blood Hb in four local strains.

Concerning the correlation coefficients among blood parameter each others, it could be observed that most of these parameters are correlated with each others with high and significant values and varied according to the strain. On the other hand, there was no significant correlation between blood Al and all blood parameters in both strains except, between Al level and Hb concentration in MAT chicks. However, MAT strain showed superior estimates of phenotypic correlations between blood parameters each others. Correlation between blood TP and T3 was not significant and had contradictory direction for S.M chicks. These results indicate that, estimate of one of these parameters could be used as a good indicator to the other significantly correlated parameters based on the high correlation values which obtained in these study.

This study indicated that S.M chicks either males or females showed a better values for growth traits (LBW, BWG and FC) as well as some carcass traits and blood parameters. Thus it can be used for rearing by the small holders in the Egyptian villages.

Table (1): Composition of the experimental diets

Ingredients	**Starter (0- 4 wks)**	**Grower (4 -12 wk)**
Corn	62.5	62.5
Soybean meal (44%)	31.28	17
Wheat bran	2.60	15.5
Palm oil	----	1.0
Di – Cal – Phosphate	2.0	1.70
Limestone	0.88	1.5
Salt	0.38	0.40
Dl – Methionine	0.06	0.05
Lysine	---	0.05
Vit and Mineral premix	0.30	0.30
Total	100	100
Calculated analysis		
C.P	19	15.0
ME Kcal kg	2825	2900
C.F	4.0	3.83
Ca	0.91	0.97
Available phosphorus %	0.51	0.47
Methioine %	0.39	0.33
Meth + Cys %	0.17	0.59
Lysins	1.08	0.80

** According to ministerial decree (1996).

Table (2): Means ± S.E. of body weight (g) and body weight gain (g) of Silver Montazah (S.M) and Matrouh (MAT) chicks throughout the experimental periods (weeks).

Traits	S. M		MAT		Overall means	
	Male	Female	Male	Female	S.M	MAT
Live body weight (g)						
Initial wt	34.59 ± 0.46 ^{a}	31.42± 0.19 ^{c}	33.19 ±0.56 ^{b}	31.76 ± 0.18 ^{c}	33.18 ± 0.56	32.48 ± 0.37
4 wk	186.06±1.45 ^{a}	169.88 ±1.27^{b}	170.38± 1.98^{b}	149.06± 1.62 ^{c}	178.87 ± 2.75^{A}	159.72 ±3.75^{B}
8 wk	513.51±1.99 ^{b}	449.70± 2.47 ^{c}	540.59± 2.35^{a}	432.63± 2.35^{d}	485.15 ±10.97	486.61±18.06
12 wk	873.04±2.64 ^{a}	797.30± 2.37^{b}	801.04± 3.19^{b}	680.26± 1.99 ^{c}	839.38 ± 12.36^{A}	740.65± 20.21^{B}
Body Gain (g)						
0 – 4 wk	151.48±1.77 ^{a}	137.54± 1.63^{b}	137.38±1.61 ^{b}	117.26±1.44^{c}	145.28 ±2.38 ^{A}	127.32± 3.50 ^{B}
4 – 8 wk	327.44±3.01 ^{b}	278.01± 2.53 ^{c}	370.20± 2.02^{a}	283.57± 2.38 ^{c}	305.47 ± 8.48 ^{B}	326.88± 14.51^{A}
8 – 12 wk	359.53±2.80 ^{a}	351.65± 2.79^{a}	260.54± 2.16^{b}	247.64± 2.13 ^{c}	356.03 ± 2.31 ^{A}	254.05± 2.57 ^{B}
0 – 12 wk	838.45±2.16 ^{a}	768.09± 2.40^{b}	767.84± 2.07^{b}	648.49± 2.75 ^{c}	807.18 ±11.84 ^{A}	708.16± 19.96^{B}

a,b,…, Means within the same row with different superscripts are significantly different at ($P \leq 0.01$)

A,B, Means within the same row with different superscripts are significantly different at ($P \leq 0.01$)

Table (3): Means ± S.E of feed intake (g feed/bird) and feed conversion (g feed/g gain) of Silver Montazah (S.M) and Matrouh (MAT) chicks throughout the experimental periods (weeks).

Traits	S.M		MAT		Overall means	
	Male	Female	Male	Female	S.M	MAT
Feed intake (g)						
0 – 4 wk	638.40± 4.04[a]	630.10±11.55[a]	593.60±5.77 [b]	588.13± 6.96[b]	634.25± 5.78[A]	590.86± 4.22[B]
4 – 8 wk	1195.6± 8.66[a]	1176.00± 5.86[a]	1094.80±8.08 [b]	1078.00±7.36 [b]	1185.80± 6.41[A]	1086.40± 6.17[B]
8 – 12 wk	1540.0± 11.40[a]	1492.40±6.93 [b]	1355.2± 8.66 [c]	1307.6± 4.04 [d]	1516.20±12.20[A]	1331.40±11.47[B]
0 – 12 wk	3374.0± 7.97 [a]	3298.26± 4.71[b]	3043.60± 7.51[c]	2973.6± 7.51 [d]	3336.13± 7.43 [A]	3008.60±16.36 [B]
Feed conversion (g feed/g gain)						
0 – 4 wk	4.21± 0.17	4.53±0.29	4.32± 0.17	5.01± 0.46	4.37± 0.17	4.66± 0.27
4 – 8 wk	3.64± 0.35	4.19± 0.40	3.00± 0.35	3.80± 0.40	3.88± 0.27	3.38± 0.30
8 – 12 wk	4.28± 0.16	4.26± 0.46	5.20± 0.23	5.28± 0.23	4.28± 0.22 [B]	5.24± 0.15[A]
0 – 12 wk	4.03± 0.29	4.29± 0.23	4.00± 0.29	4.58± 0.23	4.16± 0.18	4.27± 0.22

a,b,…, Means within the same row with different superscripts are significantly different at ($P \leq 0.05$)

A,B, Means within the same row with different superscripts are significantly different at ($P \leq 0.05$)

Table (4): Means ± S.E of carcass traits (%) and small intestine length (cm) of Silver Montazah (S.M) and Matrouh (MAT) chicks at the end of experiment.

Traits	S. M		MAT		Overall means	
	Male	Female	Male	Female	S.M	MAT
Carcass (%)	61.89 ±0.95	59.91 ± 0.60	59.82 ±0.71	61.51±1.01	60.9± 0.61	66.7± 0.64
Liver (%)	1.95 ±0.48 ^{b}	2.48 ± 0.12^{ab}	2.37 ±0.15^{ab}	3.39 ±0.59^{a}	2.17± 0.94 ^{B}	3.05± 0.42^{A}
Heart (%)	0.45 ±0.04	0.46 ± 0.46	0.52 ±0.07	0.46±0.04	0.45± 0.03	0.48± 0.03
Gizzard (%)	2.40 ±0.17	3.05 ± 0.97	2.72 ±0.28	2.93±0.15	2.69± 0.14	2.86± 0.13
Total Giblets(%)	4.80 ±0.16^{b}	6.42 ± 0.60 ^{ab}	5.59 ±0.42 ^{ab}	6.78±0.64^{a}	5.61± 0.42	6.36± 0.47
Small intestine length (cm)	124.0±2.71^{ab}	125.80 ± 4.36^{a}	116.70 ±2.11^{bc}	115.0±3.42^{c}	125.0± 2.46^{A}	115.8± 1.93^{B}

a,b,…, Means within the same row with different superscripts are significantly different at ($P \leq 0.01$)

A,B, Means within the same row with different superscripts are significantly different at ($P \leq 0.01$)

Table (5): Means ± S.E of some blood constituents of Silver Montazah (S.M) and Matrouh (MAT) chicks at the end of experiment.

Traits	S. M		MAT		Overall means	
	Male	Female	Male	Female	S.M	MAT
Ca (mg/dl)	12.08±0.76^{b}	14.86±84^{a}	12.22±0.81^{b}	11.38±0.50^{b}	13.47±0.68^{A}	11.80±0.47^{B}
P (mg/dl)	4.49±0.56	5.03±0.23	4.92±0.36	4.37±0.50	4.76±0.30	4.65±0.30
T.P (g/dl)	4.31±0.86	4.63±0.36	4.69±0.68	4.71±0.40	4.47±0.42	4.70±0.35
AL (g/dl)	2.54±0.31	2.57±0.75	2.23±0.28	2.57±0.11	2.56±0.51	2.40±0.15
Glu (g/dl)	1.77±0.34^{b}	2.06±0.28^{ab}	2.46±0.02^{a}	2.14±0.17^{ab}	1.92±0.21^{B}	2.30±0.14^{A}
Hb (g/dl)	13.11±0.37^{ab}	13.75±0.32^{a}	11.65±0.44^{bc}	11.50±0.54^{c}	13.43±0.34^{A}	11.58±0.33^{B}
T3 (ng/dl)	200.00±3.87^{a}	180.22±3.75^{b}	183.40±4.74^{b}	152.7±4.38^{c}	190.11±4.32^{A}	168.05±5.55^{B}

a,b,…, Means within the same row with different superscripts are significantly different at ($P \leq 0.05$)

A,B, Means within the same row with different superscripts are significantly different at ($P \leq 0.05$)

Table (6): Correlation coefficients among body weight and some carcass traits for Silver Montazah (above diagonal) and Matrouh (below diagonal).

	LBW	**Giblets**	**Liver**	Gizzard	**Heart**	**Carcass**	**Small intestine length**
LBW		*** 0.925	*** 0.911	*** 0.862	*** 0.824	*** 0.996	*** 0.799
Giblets	*** 0.952		*** 0.960	*** 0.968	** 0.786	*** 0.932	*** 0.879
Liver	*** 0.914	*** 0.962		*** 0.869	** 0.773	*** 0.914	*** 0.847
Gizzard	*** 0.988	*** 0.966	*** 0.869		** 0.689	*** 0.857	*** 0.834
Heart	*** 0.847	** 0.784	** 0.719	** 0.710		*** 0.814	** 0.715
Carcass	*** 0.987	*** 0.958	*** 0.940	*** 0.883	*** 0.824		** 0.789
Small intestine length	*** 0.873	*** 0.883	*** 0.835	*** 0.885	** 0.699	*** 0.841	

*** Correlation is significant at ($P \leq 0.001$) level.
** Correlation is significant at ($P \leq 0.01$) level.
* Correlation is significant at ($P \leq 0.05$) level.

Table (7): Correlation coefficients among body weight and some blood parameters for Silver Montazah (above diagonal) and Matrouh (below diagonal).

	LBW	**T.P**	**Al**	**Gl**	**Ca**	**P**	**Hb**	**T_3**
LBW		0.517	0.488	0.268	0.500	* 0.581	** 0.744	*** 0.911
T.P	** 0.791		0.401	0.094	*** 0.907	0.350	** 0.689	0.454
Al	* 0.559	0.370		0.408	0.235	0.085	0.290	0.475
Gl	*** 0.860	**** 0.947	0.274		0.478	*** 0.816	* 0.583	* 0.569
Ca	*** 0.876	*** 0.972	0.464	*** 0.965		0.496	*** 0.851	** 0.682
P	*** 0. 799	0.408	0.445	0.486	** 0.780		** 0.740	** 0.786
Hb	*** 0.864	* 0.626	** 0.770	* 0.586	** 0.762	*** 0.809		*** 0.929
T_3	*** 0.947	** 0.759	0.529	*** 0.832	*** 0.883	** 0.746	*** 0.923	

Correlation is signif*** icant at ($P \leq 0.001$) level.
** Correlation is significant at ($P \leq 0.01$) level.
* Correlation is significant at ($P \leq 0.05$) level.

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الملخص العربي

دراسة مقارنة الأداء الإنتاجى و الفسيولوجى لسلالتين من كتاكيت الدجاج المحلى

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أجريت هذه الدراسة لتقييم ومقارنة بعض الصفات الانتاجية و الفسيولوجية و صفات الذبيحة و كذلك معاملات الارتباط للكتاكيت من سلالتى المنتزة الفضى و المطروح. تم إستخدام عدد 450 كتكوت عمر يوم مجنس من كل سلاله (210 كتكوت ذكر+240 كتكوت انثي) وزعت الكتاكيت علي 4 مجاميع. المجموعتين الاولي والثانية اناث وذكور كتاكيت المنترة الفضي علي التوالي ، المجموعتين الثالثة والرابعة اناث وذكور كتاكيت المطروح علي التوالي حيث وزعت كل مجموعة تجريبية علي 3 مكررات كل منها تحتوى على 70 ذكر ، 80 أنثى و استمرت التجربه من عمر يوم حتى عمر 12 أسبوع. وتتلخص اهم النتائج المتحصل عليها فيما يلي :

- سجلت كتاكيت المنتزه الفضى إرتفاعا معنويا في وزن الجسم الحى عن سلالة المطروح عند عمرى 4 و 12 أسبوع بينما كان الفرق غير معنوى بين السلالتين عند الفقس و عند عمر 8 أسابيع و كان للجنس تأثير معنوى حيث تفوقت ذكور كل سلاله على الاناث في صفه وزن الجسم لجميع الأعمار المدروسة .
- أظهرت سلالة المنتزه الفضى تفوقا معنويا عن سلالة المطروح في زيادة وزن الجسم خلال جميع الفترات العمريه المدروسة ماعدا الفترة من 4- 8 أسابيع كما لوحظ تفوق ذكور كل سلالة على إناثها في الوزن المكتسب خلال جميع الفترات العمريه المدروسه .
- كانت كميه الغذاء المستهلك يوميا لكتاكيت سلالة المطروح أقل معنويا عن تلك المستهلكه لكتاكيت سلالة المنتزة الفضى خلال الفترات المدروسة .
- أظهرت كتاكيت المنتزه الفضى تحسنا معنويا في الكفاءة التحويلية للغذاء خلال الفترة من 8 - 12 اسبوع بينما تساوت السلالتان في كفاءة تحويل الغذاء خلال باقي الفترات في حين لم يكن للجنس أى تأثير على كفاءة تحويل الغذاء .
- تفوقت سلالة المنتزه الفضى معنويا على سلالة المطروح في طول الأمعاء الدقيقة بينما كان العكس صحيح بالنسبه للوزن النسبي للكبد و كان للجنس تأثير معنوى على صفات طول الأمعاء و الوزن النسبي لكل من الكبد و الاجزاء المأكولة.

- بالنسبه لتقديرات الدم المدروسة فقد أظهرت سلالة المنتزه الفضى تفوقا معنويا في كل من تركيز الكالسيوم و هرمون الغده الدرقية ثلاثي اليود (T3) في البلازما و كذلك مستوى هيموجلوبين الدم بينما كان تركيز الجلوبيولين أعلى معنويا في بلازما كتاكيت المطروح في حين لم يكن هناك فرق معنوى بين السلالتين في تركيز كل من الفوسفور و البروتينات الكليه و الالبيومين.
- كانت قيم معاملات الإرتباط بين وزن الجسم الحي وصفات الذبيحة موجبة وعالية المعنوية لكلا السلالتين .وقد تحققت نفس النتيجة بالنسبة لوزن الجسم الحي مع صفات الدم المدروسة في سلالة المطروح في حين كان هذا الارتباط معنويا فقط لمستوي كل من الفوسفور و الهرمون ثلاثي اليود (T3) وهيموجلوبين الدم بالنسبة لسلالة المنتزه الفضي.
- من هذة الدراسة يتضح ان كتاكيت المنتزه الفضي كانت الأفضل في وزن الجسم ومعدل النمو لذلك ينصح تربيتها لدي صغار المربين في الريف المصري .