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THE WEIGHT OF THE BURSA OF FABRICIOUS IN SELECTED CHICKENS DEPENDING ON RESISTANCE OR SENSITIVITY TO STRESS

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SUMMARY

Mean body weight and body temperature of chickens selected from known parents of groups (sensitive and resistant to stress) were measured weekly. No significant difference was found. Weight of the bursa of Fabricious was significant at week 15.

INTRODUCTION

Many studies had been conducted on the effect of heat stress on livability and production in chicken and the mechanisms involved in resistance to such stress(2). Most of these studies indicate a strain or breed effect(4). Other studies showed that the ratio of heterophils/lymphocyte (H/L) changes according to the sensitivity to stress(3). the study of Al- murrani et. al. (1996)(1) pointed out that this ratio is under the control of few gens and that there are strain difference. In the same study the H/L ratio was used to separate a flock of parent stock of chickens into a resistant (R) and sensitive (S) groups for that STRESS and other stressors. the (R) also excelled the (S) group in some production and general resistance traits. For the purpose of studying the major mechanism for resistance and sensitivity to each stressors this follow-up study was done on the same stock.

MATERIALS AND METHODS

The Stock :

A parent stock of 1100 hens was separated a resistant (R) and Sensitive (S) groups according to the H/L ratio(1). 500 Chicks produced by the two groups (R & S) were taken at hatching and reared up to 16 weeks of age under the same environmental and managemental conditions. Food was restricted and water was supplied ad Libitum.

Body Weight and temperature :

50 individual body weight were recorded collectively (for male and female) every week up to week 11, were then taken for males and females separately.

body temperature at the house and the same day of each of the week (1, 2, 3, 4, and 6) was recorded.

Correlation (r) between body weight and temperature was calculated for weeks 3, 4 and 6 for each of R and S groups.

Bursa of Fabriciouns :

At week 15, 10 males of each group were slaughtered and bursa of Fabricious were taken and weighted. correlation and regression coefficients between bursa and birds body weight were calculated.

RESULTS AND DISCUSSION

Table (1) shows mean body weight of both R and S for the weeks from hatching to the 11th, sexes combined except for week 11. No significant difference exists except at week 3. body temperature for the first 6 weeks was also not significantly different' between R and S (Table 2). Correlation coefficient (r) between body weight and temperature (Table 3) was found negative and not significant for ages at week 3 and 4 and positive and only significant for the resistant group a(+0.519) at week 6. (not clear). Table (4) shows body weight in (Kg), weight of bursa

(gms) and correlation and regressions between those at week 15 of age a sample of both R and S. Body weights of R and S were not different ($P > 0.05$), but there were a significant difference in Bursa weight ($p > 0.01$) being about twice in weight (5.178) in the sensitive group compared to the R weight (2.667). Correlations and regressions coefficients are positive for the S and negative for R. All were not significant ($p > 0.05$).

The above results reflects that neither body weights nor body temperature, contribute to the difference in heat stress resistance between R and S. The higher weight of bursa in the sensitive group is of interest and need to be studied in relation to immune response and resistance to infection with different microbial agents or pathogens. The higher might indicate that S group used this organ for defence mechanism during life and for a longer duration. The results might also indicated that the differences between R and groups in their resistance or sensitivity to stress might be mediated through other mechanisms.

Table 1: Mean body weight of sensitive (S) and resistance (R) for the weeks (0-10), sexes combined and week 11 separate sexes Mean ± SE

Week		S	R
hatching	0	50.2±1.1	50.7±1.1
	1	132.3±3.6	127.4±2.4
	2	206.7±4.6	202.5±6.3
	3	379.1±8.4	315.9±10.3***
	4	614.1±13.3	607.3±18.3
	5	815.5±23.7	864.7±29.0
	6	936.0±23.8	1008.3±31.0
	7	1265.0±35.5	1299.0±41.5
	8	1273.5±54.9	1216.1±36.5
	9	1294.0±52.0	1379.0±44.0
week	10	1595.0±87.0	1564.0±61.7
	11		
	°	2384.0±68.0	2443.0±52.0
	+	2316.0±53.0	2275.0±28.0

*** Significant at 0.001 level

Table 2: Mean body temperature in °C for resistance (R) and sensitive. Mean ± SE

Week	S	R
1	40.87±0.13	40.68±0.17
2	41.06±0.03	41.03±0.03
3	41.13±0.04	41.09±0.03
4	41.13±0.08	41.37±0.05
6	41.09±0.04	41.07±0.03

Table 3: Correlation coefficient between body temperature and body weight for the weeks 3,4 and 6.

Correlation		
Week	S	R
3	-0.030	-0.251
4	-0.165	-0.157
6	+0.161	+0.519*

* Significant at 0.05 level

Table 4: The correlation (r) and regression (b) coefficients beteewn body weight (kgm) and Bursa weight (gm) at week (14)

Group	Body weight (kg)	Bursa weight (gm)	r	b
S	4.298±0.08	5.178±0.671	+0.25	+1.95
R	4.214±0.08	2.667±0.0504	-0.33	-1.85
sig.	N.S	$p < 0.01$	N.S	N.S

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وزن غدة فابريشيا في الدجاج المنتخي على اساس دليل H/L الى مقاوم وحساس للاجهاد

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سجل اسبوعا معدل اوزان ودرجات الحرارة لافراخ من امهات منتخبة من مجموعتين مقاوم وحساس للاجهاد. حيث لوحظ عدم وجود فرق مهم احصائيا بينهما. كما قيست اوزان غدة فابريشيا للمجموعتين بعمر 15 اسبوع ولوحظ ان هنالك زيادة معنوية في اوزان غدة فابريشيا في الافراخ المقاومة للاجهاد ($p < 0.01$ %).