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EFFECTS OF DATE PALM POLLEN ON PRODUCTIVE PERFORMANCE, EGGS QUALITY AND SOME BLOOD PARAMETERS IN JAPANESE QUAIL

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Abstract

Japanese quail one of the most import bird in some country because of low expensive of eggs production, there for we try to Persist on production for as long as possible there for and this study was conducted to determine the effect of adding different levels of date palm pollen in productive performance and some eggs quality Japanese quail by use of 96 hens of Japanese quail. The treatments was 0, 6, 8, 10 gm\kg diet (T_1, T_2, T_3 and T_4) respectively. The results shows that there was a significant different ($p = 0.05$) in eggs production and eggs weight , the Percentage of quail day production (HD%), which was 76.16 , 72.23 , 71.77, 69.67 % during 4th period for T_4, T_3, T_2, T_1 respectively , and the eggs weight in T_1 was 10.85gm compared with 13.49, 12.37 and 12.86 g in T_4, T_3 and T_2 respectively.

Key words: Date Palm Pollen, Japanese quail, Egg Production, blood measurements

Introduction

Eggs are one of the most important sources of animal protein Therefore, it is necessary to establish scientific foundations to try to increase the production of eggs. Japanese quail one of the birds that used to eggs production in japan firstly and now in most countries (Hassan and Abd–Alsattar; 2015) Because of the ease of breeding, management and low production costs. Asuspension of date palm pollen (DPP) (*Phoenix dactyliferous* L.) is a herbal therapy that is widely used as male infertility enhancer (Zaid, 1999; Zargari, 1999). DPP and male palm flowers were traditionally regarded as aphrodisiacs and fertility enhancers (Zaid, 1999). Reports have also identified microelements such sterols and other agents that might influence male and female fertility DPP (Hassan, 2011). The fertility effects of DPP are not strongly supported, with the exception of one study that elucidated beneficial effect of an alcohol extract of DPP on semen quality in normal male rats (Bahmanpour *et al.*, 2006). It is a good source of natural antioxidants; Flavonoid is the major class of phytoestrogen. It is functionally and structurally similar to estrogen for that affects on Spermatogenesis. Flavonoids also act as antioxidant (Lotito and Frei, 2006). The use of DPP as feed additive to animal diet lead to more daily gain and the use of water extract of DPP record a significant different in production and weight of eggs compared to control group and in ovary tract weight (Arhaem, 2014). We choice a DPP to use because it availability and licenses in Iraq and give a very good results in laboratory experiments and there was no previous study in it effects in Japanese quail there for we made this study.

Materials and methods

The use of 96 Japanese quail female randomly divided to four treatments 3 replicates (8 birds in each replicates) T1 was control group (received standard diet without any additive), T_2, T_3 and T_4 were 6, 8 and 10gm date palm pollen powder /kg diet. the hens were housed on floor bens 150* 100 * 100 cm. data were collected for production hen day HD, eggs weight, and for eggs quality characteristic shell thickness and weight, yolk height, yolk and albumen weight, the blood was collected by slaughter 6 birds from each treatments and blood parameters measure were glucose, uric acid, keratein, total protein, globulin and calcium. The experiment was design as CRD

(complete random design) and analysis by use SPSS (SPSS, 2003) and the Duncan's Multiple Range (Duncan, 1955) Test was used to test the different between treatments means.

Results and Discussion

The results in table 1 showed a significant different ($p \leq 0.05$) in HD production for DPP treatments compared with control and for all experiments period for T_4 and for period 2, 3 and 4 for T_2 and T_3 but in general means we see that all DPP treatments were have a significant different compared with control group. This different maybe caused by increasing of FSH & LH hormones (Liu *et al.,* 2001) because DPP have high concentration from estradiol and estrogen hormone (Arhaem, 2014). And a significant effect ($p \leq 0.05$) in eggs weight for all DPP treatments in 1, 2, 3 and 4 period and that effect may be caused by increasing of estrogen effect on liver secretion of lipids proteins and the hormone caused increasing in growth of epithelium of ovary (Walzem , 1999).

Results in table 2 shows a significant effect of the addition different levels of DDP on the egg length, treatments were superior to the control coefficients during the 1, 2 and 3 while there was no significant effect on the treatment of DPP during the 4 period. Also showed there is no significant effect of treatment with DPP in egg width during the first, second and third period and showed there was a significant different ($p \leq 0.05$) in for DPP treatments compared with control during the fourth period also there were a significant effect in yolk length for all DPP treatments compared with control in period 1, 2 and 3.

There was a significant different ($p \leq 0.05$) in Albumin length for DPP treatments compared with control and in 2, 3 and 4 period in results of table 3, this effect may be caused by increasing of estrogen and the hormone caused increasing in growth of epithelium of ovary (Walzem, 1999)

The results in table 4 showed there is no significant effect of treatment with DPP in yolk weight during the first, second, third and fourth period. The results in table 6 showed there was a significant different ($p \leq 0.05$) in albumin weight for T_4 compared with control and for all experiments period.

And from table 5 we can see there is no significant

Table 1: Effect of DPP on HD% production and egg weight (gm)

Weeks	T_1	T_2	T_3	T_4	Sig
HD% production					
1	72.97± 6.89B	76.37±5.92Ab	75.42±2.75Ab	82.78±2.25A	*
2	70.20±1.71B	74.06±1.84A	73.46±1.69 A	75.22±3.21A	*
3	71.10±1.30B	79.10±3.02A	73.56±4.04A	82.40±1.12A	*
4	69.67±1.40B	71.77±0.27A	72.23±3.13A	76.16±4.38A	*
egg weight (gm)					
1	10.83±0.08B	11.92±0.71A	11.83±0.27A	13.94±0.44A	*
2	10.47±0.72B	12.84±0.34A	11.94±0.34A	12.21±0.96A	*
3	11.64±0.32B	12.86±0.21A	12.93±0.09A	13.23±0.30A	*
4	10.85±0.77B	12.86±0.54A	12.37±0.27A	13.49±0.42A	*

* T_1 control without and additive
* T_2, T_3 and T_4 feed with DPP 6, 8and 10 gm/kg diet
* The different letter a, b, c refer to significant different

Table 2: Effect of DPP on egg length(Ml) andegg width (Ml)

Weeks	T_1	T_2	T_3	T_4	Sig
egg length (Ml)					
1	31.85±0.75B	32.48±0.13A	32.16±0.43A	33.88±0.62A	*
2	30.91±0.06B	33.64±0.53A	32.57±0.71A	32.29±0.74a	*
3	31.27±1.22B	32.82±0.30A	32.47±0.42A	32.17±0.29A	*
4	32.81±0.71	32.50±0.13	32.26±0.43	33.88±0.62	N.S.
egg width (Ml)					
1	25.47±0.38	25.23±0.55	25.90±0.14	26.28±0.11	N.S.
2	24.40±0.37	25.65±0.40	25.78±0.37	25.84±0.35	N.S.
3	25.67±0.11	25.33±0.13	25.46±0.25	25.30±0.20	N.S.
4	25.01±0.39B	25.25±0.55A	25.90±0.14A	26.95±0.11A	*

* T_1 control without and additive
*T_2, $T_3$and T_4 feed with DPP 6, 8 and 10 gm/kg diet
* The different letter a, b, c refer to significant different

Table 3: Effect of DPP on yolk length (Ml) and albumin length (Ml)

Weeks	T_1	T_2	T_3	T_4	Sig
yolk length (Ml)					
1	12.95±0.20B	13.30±0.18A	13.19±0.11A	13.82±0.19A	*
2	12.40±0.10B	13.36±0.53A	12.78±0.37B	13.60±0.30A	*
3	11.94±0.48C	13.32±0.03B	14.04±0.12A	14.32±0.15A	*
4	13.27±0.17	12.95±0.18	13.19±0.11	13.81±0.19	N.S
Albumin Length (Ml)					
1	6.22±0.32	6.40±0.09	6.19±0.31	6.56±0.24	N.S
2	5.53±0.22C	6.01±0.13B	6.38±0.20B	7.41±0.27A	*
3	5.65±0.17C	6.10±0.18B	6.39±0.32B	7.79±0.05A	*
4	5.78±0.33C	6.17±0.08B	6.45±0.31Ab	6.98±0.24A	*

* T_1 control without and additive
* T_2, $T_3$and T_4 feed with DPP 6, 8 and 10 gm/kg diet
* The different letter a, b,c refer to significant different

Table 4 : Effect of DPP on yolk weight (gm) and albumin weight (gm)

Weeks	T_1	T_2	T_3	T_4	Sig
yolk weight (GM)					
1	3.81±0.22	3.84±0.09	3.58±0.31	4.56±0.24	N.S
2	3.53±0.22	3.01±0.17	3.90±0.09	4.49±0.41	N.S
3	3.65±0.1	3.76±0.02	4.06±0.07	4.73±0.13	N.S
4	3.78±0.23	3.28±0.09	3.58±0.09	4.09±0.20	N.S
Albumin weight (GM)					
1	6.47±0.41b	6.03±0.32b	7.08±0.31A	7.38±0.53a	*
2	6.11±0.43b	6.59±0.06b	6.98±0.20Ab	7.48±0.28a	*
3	6.33±0.45b	6.87±0.23b	7.12±0.06Ab	7.08±0.30a	*
4	6.47±0.81b	6.39±0.32b	7.46±0.03ab	7.97±0.55a	*

* T_1 control without and additive
* T_2, $T_3$and T_4 feed with DPP 6, 8 and 10 gm/kg diet
* The different letter a, b,c refer to significant different

Table 5 : Effect of DPP on yolk width (Ml)and shell weight (gm)

Weeks	T_1	T_2	T_3	T_4	Sig
yolk width (MI)					
1	24.92±0.05	24.44±0.18	25.29±0.31	25.45±0.86	N.S.
2	25.48±2.27	25.32±0.36	25.95±0.88	25.62±0.89	N.S.
3	25.79±0.21	25.98±0.13	24.96±0.18	25.04±0.10	N.S.
4	24.77±0.39	24.44±0.18	25.95±0.14	25.45±0.86	N.S.
Shell weight (GM)					
1	1.54±0.11Ab	1.37±0.12B	1.33±0.05B	1.78±0.03A	*
2	1.52±0.14	1.78±0.01	1.60±0.01	1.72±0.08	N.S.
3	1.89±0.02	1.84±0.03	1.81±0.08	1.81±0.02	N.S.
4	1.37±0.11Ab	1.37±0.12B	1.33±0.05B	1.78±0.03A	*

* T_1 control without and additive
* T_2, T_3 and T_4 feed with DPP 6, 8 and 10 gm/kg diet
* The different letter a, b,c refer to significant different

Table 6 : Effect of DPP on some blood parameters

Characteristic	T_1	T_2	T_3	T_4
Glucose Mlg/dsl	235.3±4.7b	265.7±2.4ab	277.3±3.9A	286.2±7.3A
Uric acid Mlg/dsl	24.5±2.3a	22.2±5.2ab	20.1±1.3A	19.2±3.2A
Keratein Mlg/dsl	1.44±0.23a	1.11±0.43ab	0.88±0.37B	0.75±0.53B
Total protein gm/dsl	3.63±0.11	3.44±0.38	3.45±0.78	3.65±0.87
Globulin gm/dsl	1.23±0.37b	1.44±0.51b	1.76±0.37A	1.75±0.31A
Wbc 10^3/ml^3 blood	24.12±7.3b	25.42±6.2b	27.21±8.1A	28.2±8.9A
Calcium (%)	3.23±0.22	3.44±0.65	3.87±0.3	3.61±0.7

* T_1 control without and additive
* T_2, T_3 and T_4 feed with DPP 6, 8 and 10 gm/kg diet
* The different letter a, b, c refer to significant different

effect of treatment with DPP in yolk width during the first, second , third and fourth period also showed a significant effect ($p \leq 0.05$) for T_4 treatment in first and fourth period in shell weight compared with control, T_2 and T_3 treatment and this result came from increasing in calcium observation and metabolic.

Results in table 6 refer to glucose measurement T_3, T_4 have a significant different compared with control, also in uric acid parameters and keratein (mgl/dsl). But in total protein there was no significant different wail in globulin and white blood cells for T_3, T_4 compared with T_1, T_2. In calcium characteristic there was no different (Shanoon *et al.*, 2012; Saeid *et al.*, 2011; Al-Shamary *et al.,* 2016) .

The results of this experiment can be summarized that DPP have significant effects in most parameters that measured in this experiment like eggs weight, albumen, yolk and cholesterol.

This study identified the benefits of use DPP for public health and enhanced production. This study will help researchers to identify critical areas for the use of it and many researchers have not been able to explore. Thus, a new theory can be found on the hypothesis that palm pollen is used as a stimulant for ovaries in females and this research supports this view.

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