



EFFECT USING DIFFERENT LEVELS OF DATE PALM POLLEN ON SOME HEMATOLOGICAL AND BIOCHEMICAL PARAMETERS IN LOCAL RABBIT MALES

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Abstract

This study was conducted to determine the effects of date palm pollen (dpp) on some Hematological and biochemical parameters in local rabbit males by using 12 local rabbits males with an age 2 years and Weight 1.320 ± 0.75 kg. The animals were randomly divided into three groups (4 animals) in each group: Control C Use a diet free of pollen, T1 and T2, in which a diet containing 4 and 8 gm of (dpp) per kg/feed respectively for the same diet of control group. The results showed significant differences ($p \leq 0.05$) when date palm pollen was used in some of the complete blood traits. Results showed Cholesterol, glucose, were significantly higher for T1 and T3 compared to control, FSH, LH and progesterone. The study showed a significant decrease in the values of AST and ALT compared to control.

Key words: palm pollen, Hematological, biochemical parameters, local rabbit males.

Introduction

Meat is an important source to meet the growing need for animal proteins in most countries of the world. Therefore, researchers have begun to raise rabbits for the consumption of plant fiber and agricultural waste Where fiber can be used with high efficiency (Cheeke Templeton, 1982). The rapid passage of food in the digestive system allows the intake of the largest amount of food material in a short period of time as studies have been directed towards the use of medicinal tablets (Bayely, 1978) because of the positive effects of both animal and human (Shanoon, 2011). It also increases the body's immunity by stimulating the immune system (Cindy, 2001). Use both pollen since ancient times. The ancient Egyptians knew these plants and consider it as symbol of fertility. Many Middle Easterners ate pollen in the morning because they believed it was an anti-toxin that could be exposed to the body during the day, (Bahman, 2006). The seeds of pollen are male pollen, which are usually white and yellowish. This is called pollen and it contains a wide range of proteins, amino acids, nucleic acids, carbohydrates, vitamins, sugars and minerals. Pollen is an important source of natural antioxidants, especially

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flavonoids, carotenoids, Vitamins, fatty acids, enzymes and hormones. In a study conducted by (Stanley and linkens, 1974). Where it was found that pollen palm trees lead to reduce the level of fat in the blood of adult rabbits, especially cholesterol and triglycerides, but did not have the effect on the level of high-density lipoprotein in adult rabbits as proved by shanoon (2019), that the pollen contains glucose and contains protein, the content of protein exceeds the presence in meat and also contain the pollination of a wide range of vitamins and include in the composition of essential and non-essential amino acids and fatty acids, enabling it to resist inflammation and increase immunity to the body. Both (Al-Shagrawi, 1998 and Hazem, 2011) indicated that pollen contains estrogen, cholesterol, flavonoids and acetone which act as antioxidants like B-sitoterole, B-amirin and flavonoids. (Guo, 2004) referred that Pollen is associated with the type of semen as the pollen extract contains estrogen, which has a significant role in stimulating the genitals. If we look at the chemical composition of the date palm we know that this huge amount of therapeutic benefits, where the palm pollen. If we look at the chemical composition of the date palm we know that this huge amount of therapeutic benefits, where the palm leaf contains 17% of sugar cane and contains 22% of protein and 54%

calcium and vitamins CBA contains 17% of sugar cane and contains 22% of protein and 54% calcium and vitamins C, B and A. (Ahmed, 2008, Al-Shamary and shanoon, 2017) referred that it contains the triangles of phosphors and iron. The level of nutrition and relational components is one of the factors affecting the efficiency of rabbits productivity. Some blood values of rabbits such as cell size, hemoglobin (Hg) levels, number of red blood cells, white blood cells and some vital chemical values such as total protein, total lipids, cholesterol as pointed (Njdda and Isidahomen, 2010).

Materials and methods

Twelve local rabbits males were purchased from the local market with age 4-5 months and weight 640.32 ± 25.3 gm. The animals were randomly divided to three treatments and at the same rates of weights and four rabbits in each group. Cages distance (60*50*40) cm and with one rabbit in each cage, rabbits were given them need by using NRC 1994 for maintenance and growth needs, but they differ in the percentage of addition of pollen and Control (0) gm/kg feed, (8) gm/kg feed for rabbits. To study the effect of addition on some physiological characteristics of rabbits, the feeding of animals on the experimental and free diets continued for one week, in order to introduce the rabbits to the new bush. The center and end of the experiment were Blood samples were withdrawn directly from the heart and the samples were placed in sealed plastic containers Ethylene diamine tetra-Acetic acid (EDTA) is used to measure blood properties such as red blood cell (RBC), white blood cell (WBC), hemoglobin (Hb) and blood cell size (PCV) Packed cell volume (Mean), Mean Cell Volume (MCV), Mean Corpuscular Hemoglobin (MCH), Red Hemoglobin Concentration (MCHC) Mean Corpuscular Hemoglobin concentration by mathematical equations according to Coles(1987). At the same time, samples are taken in plastic containers that are not the samples were centrifuged at a speed of 3000 cycles/min for 15 minutes to isolate the blood serum. The samples were frozen for 24 hours to measure some of the chemical properties, such as total protein (TP) (AL), total fat (TF), GLY cholesterol, glucose (GLU), blood glucose measurement by using Spectrophotometer and the concentration of hormones LH, FSH and progesterone were measured in serum. Using the German-based Max-plank-Ring and using the ELISA technology. AST and ALT enzymes were also measured using Randox Kit.

Statistical analysis of data

The data was analyzed using the Completely Randomized Design (SAS) (SAS, 2001).

$$Y_{ij} = \mu + T_i + e_{ij}$$

whereas:

= Y_{ij} value of any view in the experiment.

= μ The general mean of the studied character.

= T_i effect of the treatment.

e_{ij} = The experimental random error of observation.

Duncan's multiple rang test was used to measure the significance of transactions (Duncan, 1955).

Results and discussion

The results of the statistical analysis, as shown in table 1, showed a significant effect of $P < 0.05$ for the addition of date palm pollen in the studied blood traits of local rabbits. Significant differences were found between $P < 0.05$ and T2 and T1 respectively. (RBC, WBC, PCV, Hb). The reason for this superiority may be due to the containment of date palm pollen on phenolic compounds and certain other substances, acting as an antioxidant (Maertens, 1992) and protecting red blood cells from oxidative decomposition It also increases the number of white blood cells and may be attributed to the increase in (Mbasas and Poulsen, 1981) and the immune system (Cindy, 2001, Esawii and Abd-Alhussain, 2012) while there was no significant difference in the body's immune system $p < 0.05$ between the parameters of the other blood parameters, the size of the red corpuscle (MCV), the average volume of hemoglobin (MCH) and the concentration of red blood cells (MCHC).

The addition of pollen to the diet resulted in a decrease in the concentration of urea in the serum. This is due to the fact that the high concentration of the total protein in the serum indicates the increase in the process of protein synthesis and decrease in the process of protein destruction (Bayely, 1978) this is reflected in the low concentration of urine serum in addition to palm pollen, the containment of date palm pollen on tannin compounds inhibiting certain enzymes responsible for the synthesis of cholesterol (Al-Esawii, 2012) and works to inhibit the enzyme responsible About the absorption of cholesterol from the bright which is inhibited by increased insulin (Maechler, 1993) as well as containing polyphenol, it works to lower cholesterol (Anderson, 2008). The (Mohamed and Shanoon, 2011) indicated that the pollen grain contained insulin (IPF). An insulin stimulant plays an important role in lowering glucose levels in the blood. The decrease in the concentration of glucose to the role of the substances contained in the pollen may be due to the increased activity of enzymes responsible for the formation of the classics such as the Glykogen Synthese

Table 1: Effect of adding date palm pollen on the characteristics of dermophysics of rabbit blood (mean \pm standard error)

Characters	Treatments		
	C	T1	T2
RBC $\times 10^6$ mm blood	5.11 \pm 0.27b	6.12 \pm 0.28a	6.32 \pm 0.05a
WBC $\times 10^6$ mm blood	5.01 \pm 0.19b	5.91 \pm 0.36a	5.86 \pm 0.34a
PCV%	39.01 \pm 1.37	43.67 \pm 0.72	44.33 \pm 0.16
level of Hg gram/100 ml	10.00 \pm 0.46b	11.52 \pm 0.24a	11.72 \pm 0.37a
Average of red cells size mcv	76.34 \pm 0.38	71.35 \pm 0.23	70.14 \pm 0.64
Red blood Hg size mchc	19.56 \pm 0.27	18.82 \pm 5.4 \pm 0.19	18.54 \pm 0.93

Values followed with the same letters are not significantly different from each other according to Duncan's Multiple Range test at (5%) level.

C : control, T1 and T2: adding 4 and 8 gm/kg feed of dpp respectively

Table 2: Effect of adding date palm pollen on the chemical properties of rabbit blood

Characters	Treatments		
	C	T1	T2
Total protein gm/dc litter	6.11 \pm 0.13b	6.68 \pm 0.25a	6.7 \pm 0.32a
Urea (gram/dc litter	6.27 \pm 0.13a	4.02 \pm 0.09b	4.41 \pm 0.10b
Total fat	3.14 \pm 0.19	3.11 \pm 0.23	3.08 \pm 0.28
Cholesterol mlg/dcl	1.72 \pm 0.10a	1.42 \pm 0.15b	1.48 \pm 0.18b
Glucose mlg/dcl	130.3 \pm 3.1011a	8.13 \pm 2.02b	112.10 \pm 2.40b
Albums g/dcl	3.28 \pm 0.10	3.67 \pm 0.02	3.94 \pm 0.18

Values followed with the same letters are not significantly different from each other according to Duncan's Multiple Range test at (5%) level.

C : control, T1 and T2: adding 4 and 8 gm/kg feed of dpp respectively

Table 3: Effect of date palm pollen addition on FSH, LH, testosterone AST and ALT (me \pm se)

Treatments	FSH Ng/ml	LH Ng/ml	Testosterone Ng/ml	AST	ALT
C	0.67 \pm 9.5	100 \pm 600	2.11 \pm 2.15	0.13 \pm 66.5	1.29 \pm 12.1
T1	1.23 \pm 14.11	.78 \pm 7.88	0.44 \pm 3.87	0.24 \pm 45.11	1.27 \pm 881
T2	1.21 \pm 15.34	1.64 \pm 8.12	1.35 \pm 4.00	0.23 \pm 40.21	0.44 \pm 8.15

enzyme and the inhibition of enzyme activity such as Glycogen Phosphorylase Calcium decomposition (Khan, 1995). In the Salhi study on the effect of Phoenix dactylifera and flavonoid isolated at the level of cholesterol, triglycerides, high density lipids, low density lipids, fat and very low density in 49 adult rabbits, animals were randomly divided into seven groups (seven animals per group) G3, G2 and G1 were pumped with 90, 60, 30 mg/day of palm saliva respectively, while aggregates G6, G5, G4 were fed (30, 15, 7.5 mg/kg/day). Flavonoid isolated from the pollen and respectively, the results were compared with non-treated group as control group C1.

Results showed a significant decrease in serum cholesterol levels in G3, G2, G1, G5, G4 and C5 respectively, while the level of triglycerides was slightly lower in G1, G3 and G6 with the control group C1. On

the other hand, the results showed that the important effect was to improve the level of high-density lipids, which is due to the dose of 15 mg/kg/day of flavonoid, while palm leaf did not play a role in high-density lipids, agrovoc terms of treatment of palm flavored and flavonoid while they had no effect on the level of very low fat in the blood vessels of all animals under study (AL-Salihi, 2013 and Al-Shagrawi, 1998), in his study on the effect of date palm pollen in the components of fatty fat (total fatty fat, triglyceride, high cholesterol and low-density lipoprotein cholesterol) in rats, liver and rat, fed male rats to an industrial diet supplemented with grains. The results showed a significant decrease in total cholesterol (30.8% and 19.1%), total fat (39.1 and 86.39), triglycerides (6.9% and 41.8%) and LDL cholesterol (54.7% and 21.8%) respectively, while a significant increase in lipid cholesterol level was observed. This density Ah compared to rats fed diets do not contain palm pollen.

The results in table 3 showed no significant differences in FSH, LH and progesterone levels between the second and third treatments (Araak, 2012) while they were significantly higher for the second and third treatments compared with the control treatment. This may be due to the presence of flavonoids and Saponins. Which stimulate the secretion of male sex hormones (Al-Garawi, 2013). In addition, date palm pollen contains similar compounds in their chemical

composition for the synthesis of sex hormones and thus increases the number of building units available to form these hormones (Bawa, 2007). This finding correlates with that of (Kostyuk, 2004), who observed a significant increase in FSH, LH and testosterone levels in mice fed the date extract. There was also a significant decrease in the second and third parameters in the AST and ALT values compared to the control treatment and may be due to the containment of date palm pollen contains active substances containing antioxidants (Flavonoids) that protect the unsaturated fatty acids in the membranes of cellular oxidation processes and retention Membranes with optional permeability and cell retention and non-permeability outside the cell body, (AydilekN, 2004).

conclusion

From the study that date palm pollen affects the level of hormones and some hematological biochemical parameters.

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