The effect of using two different concentration of Ground Olive leaves on production traits of male Rabbits

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Abstract

The present work was designed to demonstrate the effect of two different concentration of Olive leaves (5% and 10%) in diet on production traits in male rabbits. Twenty one male rabbits with body weight average 1.1 – 1.3 kg and 4-5 months age were bought from Local Markets, and they were divided randomly into three equal groups with equal weight, put in metal cages were fed on concentrate pellets diet with green roughage. The male rabbits were divided to three equal groups and by 7 animals / group with equal weights. The 1st group (T1) (control group) was offered drinking water and fed concentrate pellets without ground olive leaves, the 2nd one (T2) (5% olive leaves) offered drinking water and fed concentrate pellets with 5% ground olive leaves /diet, while the 3rd one (T3) (10% olive leaves) offered drinking water and fed concentrate pellets with 10% ground olive leaves /diet and the nutrition were continue for 8 weeks. Animals were weight every week to see weekly weight gain and measured of some production traits such as total weight gain, feed consumption rate and the coefficient of food conversion, slaughtered all animals of groups to study some carcass characteristics which include, hot and cold carcass weight, and percentage of edible and non-edible and external parts and dressing and different carcass cuts. The results showed significant decrease (P<0.05) for the final weight, Body weight gain, relative growth rate, feed intake and coefficient of feed conversion in T2, T3 in compare with T1 control group. While the observed significant (P<0.05) decrease in carcass weight, dressing out percentage, percentage of fat around viscera, and percentage of fat on shoulder in T2, T3 group in compare with T1 and significant raising in carcass cuts (shoulder, Cotton) in T2, T3 in compare with T1. Noted that there was arithmetic difference in all groups in (Cold carcass weight, Internal edible visceral and Internal non – edible visceral and External visceral percentage and carcass cuts such as ribs and chest). The results conclude that the addition of olive leaf by 5% or 10% in the diets of rabbits may have contributed to the improvement of carcass quality and reduce the level of fat on the viscera or shoulders in the carcasses and reduce feed costs where possible bringing it about place of alfa alfa economic as interest and we recommend using the highest levels may be 15% or 20% of olive leaves in rabbits diets due to the economic feasibility and lack of toxicity.

Keyword: Olive, Male Rabbits, Olive leaves, Production traits, carcass
تأثير استخدام تركيزين مختلفين من مسحوق ورق الزيتون في الصفات الإنتاجية في ذكور الارانب
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الخلاصة
صممت التجربة لمعرفة تأثير تركيزين مختلفين (%5 و %1) من مسحوق ورق الزيتون مع العليقة على الصفات الإنتاجية في ذكور الارانب. تم شراء واحد وعشرين أرنبًا ذكرًا محليًا مع معدل وزن 1.1 و 1.3 كغم وبعمر 4- 5 أشهر من السوق المحلية، وقسمت بصورة عشوائية ووزن متقارب ووضعت في قفصات معدنية، غذت الحيوانات على العلف المخلوط (Pellets) مع العلف الحيواني (T1) (مجموعة السيطرة) في حين قُدمت الحيوانات في المحال T1 (5% ورق الزيتون) مع العلف المخلوط (%5 ورق الزيتون). معالجة الارانب إلى ثلاث مجاميع متساوية وتوزع بواقع 7 (حيوانات في كل مجموعة ومتقاربة بالوزن). المعالجة الأولى (T1) قدمت للمعالجة|Rabbits did not need to pasture or to the large areas in the halls of husbandry compared to other farm|animals, rabbit meat are classified within the white meat such as poultry meat, which excels them in terms of nutritional value because they contain a high-protein ratio and content of less fat and fiber, also excelled morally on Meat of other animals such as cattle and sheep in my recipe tenderness and juiciness (4). |

Scientific research began to pay great attention to the medical benefits of the olive tree leaves, fruits and other plant parts, especially where discovered that the most important active substances in the olive leaf are
phenols which is one of the important antioxidants in the blood (5).

The most important of these phenols impact in improving the immune response and physiological substance called (Oleuropein). The olive leaf richest source of this material compared to other parts of the olive tree, as per kilogram of olive paper will contain 2 gm of Oleuropein, where they found that the toxicity of olive leaf, especially Oleuropein material (olive phenols) are almost non-existent (6).

The addition of small amounts of diet containing a high amount of fiber reference to olive leaves enough to prevent digestive problems in developing rabbits (7).

The objective of research is to find out the effect of using two levels of 5% and 10% of olive ground leaves in the diets of rabbits in some of productive traits in rabbits males.

**Materials and methods**

The research conducted in animal house / college of veterinary medicine / university of Baghdad, where used 21 male rabbits local rate weight 1.1 and 1.3 kg with age of 4-5 months. They have been purchased from a local market and put in metal cages, rabbits were fed on concentrated food (Pellets). in addition to providing green diet, they were divided into three groups:

The first treatment (T1) control group (Control) which gave it water and feed intensive-free of olive ground leaves Pellets, The second group (T2) Provided with water and the diet contain (5% olive ground leaves) by mixed 50 grams of olive ground leaf with 1 kg of Pellets (concentrated feed), and group C (T3) provided with water and the diet contain (10% olive ground leaves) where they mixed 100 grams of olive ground leaf with 1 kg of pellets (concentrated feed).

The olive leaf drying at room temperature and then milled using electric grinding machine and made of olive leaves powder where it were mixed with wet Pellets were macerating with water and create a paste mixed and placed in the electric grinding machine to produce a new pellets mixed with olive leaves where feed manufactured in the form of pellets mixed with powder of olive leaves. They mixed 50 g of olive ground leaf with 1 kg of Pellets (concentrated feed) group of (5% olive) and 100 g of ground olive leaves with 1 kg of pellets (10% olive) (concentrated feed).

They calculated the amount of feed consumption for each observation weekly, all animals were weighted at the end of each week in the morning and before the submission of the diet. They were calculate the growth rate by account referred to by the equation (8). At the end of the experiment we cut the diet from the animals for 6 hours before the date of slaughter with clean water availability for animals, and weighted all the rabbits, considered the final weight before slaughter, and then slaughtered all the animals (21 animals) and took all carcass measurements included: hot carcass weights, Internal edible visceral weight (liver, heart, kidneys and spleen), Internal non-edible visceral weight (trachea, lungs, parts of the digestive system and the reproductive system) and external parts (head, foot, skin), weight of visceral fatty tissues and on shoulders.

Dressing percent was calculated and then left the carcass to dry at room temperature for a period of (1-2 hours) and they put the carcass in bags of polyethylene and placed in frozen...
temperature (-20 m °) for 24 hours after the end of the period took out the frozen carcasses and left at room temperature, and then weighted again to calculate the cold carcass weight then cut the carcass and, according to a shredder followed by (10) , The fat percentages account or visceral or blood by applying the following equations:

Fat ratio = weight of fat / carcass weight × 100

Visceral Ratio = Total summation of viscera/ final weight before slaughter × 100

Dressing percentage = Carcass weight / body weight × 100

Food conversion factor =The amount of feed intake / increase the weight weekly× 100

**Statistic :**
SAS software used as a statistical analysis of the data has been compare the significant differences between the averages by less significant difference test LSD (Least significant differences) (11).

**Results and Discussion**

The results suggest in the table (1) significant decrease (P <0.05) in the final weight and total weight gain, growth rate, feed intake and the coefficient of feed conversion in the two groups( T2 and T3) compared with (T1) .The decline in the two groups (T2, T3) in productivity qualities that mentioned due to contain olive leaf on phenols (Polyphenole called Oleuropein) an effective antioxidant that cause decline in palatability of diet(low palatability) (12) and thus lower rabbits consumption of diet followed by a decrease in the rate of body weight and total body weight gain and the coefficient of feed conversion, as well as that of the olive leaf susceptibility to impact negatively on the effectiveness of the enzymes Endogenous Enzymes where it has the ability to inhibit the action of metabolic enzymes and digestive such as (Trypsin, glycerol dehydrogenase, glycerol phosphate dehydrogenase, glycero kinase and Lipase) (13). As the high content of fiber and Oleuropein in olive leaves contribute significantly to reducing Feed: Gain ratio in rabbits fed with diet contain olive leaves compare with rabbits fed on a diet free from olive leaf (13). These results agreed with the study revealed that addition of olive leaf to the diets of rabbits with5% may reduce the feed consumption rate and the rate of Feed intake and body weight, carcass weight, and dressing percentage dressing out percentage compared with the control group (14). While it was observed significant increase (P <0.05) in the control group (T1) in productivity traits that given the diet good in terms of providing concentrated feed (Pellets) containing the necessary nutritional requirements for rabbits as well as the provision of green diet and daily contributed to the provision of elements and vitamins important to the needs of rabbits (15,16).

**Table (1):Effect of Olive leaves on Productive traits of Rabbits males:**

<table>
<thead>
<tr>
<th>Traits</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1(Control)</td>
</tr>
<tr>
<td>Primary weight</td>
<td>1100±31.24 A</td>
</tr>
<tr>
<td>Secondary weight</td>
<td>2000±70.38 A</td>
</tr>
<tr>
<td>Total body weight gain</td>
<td>810.28±25.76 A</td>
</tr>
<tr>
<td>Growth rate</td>
<td>117.00±4.17 A</td>
</tr>
</tbody>
</table>
It was observed that there is a significant decrease (P <0.05) in carcass weight and the percentage of fat and on viscera and on the shoulders in the two groups T2 and T3 compared to (T1) control group.

Table(2): Effect of Olive leaves on carcass traits of Rabbits Males :

<table>
<thead>
<tr>
<th>Traits</th>
<th>T1(Control)</th>
<th>T2(Olive 5%)</th>
<th>T3(Olive 10%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot carcass weight</td>
<td>53.36±1200.00</td>
<td>32.10±752.00</td>
<td>28.35±733.00</td>
</tr>
<tr>
<td>Cold carcass weight</td>
<td>31.62±790.00</td>
<td>26.63±720.00</td>
<td>38.95±738.94</td>
</tr>
<tr>
<td>Internal edible visceral</td>
<td>0.90±5.6</td>
<td>0.58±4.93</td>
<td>0.24±5.12</td>
</tr>
<tr>
<td>Internal non–edible visceral</td>
<td>0.96±21.81</td>
<td>1.29±23.60</td>
<td>1.05±23.80</td>
</tr>
<tr>
<td>External visceral percentage</td>
<td>0.72±29.13</td>
<td>1.30±26.30</td>
<td>0.72±26.30</td>
</tr>
<tr>
<td>Dressing percentage</td>
<td>3.59±60.00</td>
<td>2.63±50.00</td>
<td>1.72±50.5</td>
</tr>
<tr>
<td>Percentage of fat around the viscera</td>
<td>0.09±0.35</td>
<td>0.05±0.22</td>
<td>0.07±0.25</td>
</tr>
<tr>
<td>Percentage of fat on shoulders</td>
<td>0.04±0.37</td>
<td>0.07±0.24</td>
<td>0.03±0.21</td>
</tr>
<tr>
<td>Thighs</td>
<td>0.73±29.40 A</td>
<td>0.80±25.10 B</td>
<td>0.94±25.60 B</td>
</tr>
<tr>
<td>Shoulder</td>
<td>0.81±24.20 B</td>
<td>1.23±28.00 A</td>
<td>1.34±28.10 A</td>
</tr>
<tr>
<td>Lumber</td>
<td>0.62±23.20 B</td>
<td>1.43±28.80 A</td>
<td>0.94±28.90 A</td>
</tr>
<tr>
<td>Ribs</td>
<td>1.03±17.10 A</td>
<td>1.30±18.60 A</td>
<td>0.87±19.00 A</td>
</tr>
<tr>
<td>Chest</td>
<td>0.95±9.00 A</td>
<td>0.33±5.00 A</td>
<td>0.31±4.80 A</td>
</tr>
</tbody>
</table>

Different letters showed significant differences among treatments at the level (P<0.05)

The Oleuropein that present in olive leaf considered as antioxidant where the rabbits fed on a diet containing on olive leaf be oxidative stable and the carcasses quality with high nutritional value specifications (17).

The Oleuropein known as a catalyst Immediate precursor of hydroxytyrosol, which is a type of plant phenols antioxidants It is located in olive leaves and olive oil in the form of Elenolic acidester Oleuropein and is important in the removal of the roots (Scavenge aqueous peroxyl radicals) near the surface of the membrane of cell, while Oleuropein work on the block and inhibit the spread of Chain propagation lipid peroxyl radicals) (18).

Since the oxidation of unsaturated fats lead to damage the cell membranes, olive leaves contain...
antioxidants such as the Oleorpein they work to protect the membranes and a decrease in the proportion of fat in the carcass in addition to a lack of carcass weight and high quality offerings as compared to control fed on food free from olive leaf (19), where studies have shown that the use of 5% and 10% of the olive leaf in the diets of rabbits led to lower carcass weight compared to the control group (19).

In other studies have shown that the addition of olive leaf by 5% and 10% in the diets of rabbits did not affect the pH level and the color of carcasses, and there is no Black spots ,no solid and dehydration (20) The Rabbits fed on diets containing on the olive leaf the carcass meat in a good condition before slaughter (pre slaughter condition) in addition to the decline in lipid peroxidation in rabbit meat.

In a study of pigs indicated that the added of olive leaves to the swine diets are important in improving the quality of carcasses (21).

References


