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Effect of Dietary *Melissa officinalis* and *Laurus nobilis* on Some Microbial Traits of Broiler

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Abstract: This study was conducted at poultry field of animal production department / faculty of agriculture – university of Anbar, in the alternative site (Abu-Ghraib). This study lasted for 35 days. The experiment aimed to study the addition of *Melissa officinalis* and *Laurus nobilis* and their mixture to the diet at levels of 0, 2, 4 and 6 gm/km feed on the microbial traits of broiler. For this study (240) one day old unsexed broilers (Ross 308) were used with an average weight of 40 gm. The chicks were distributed on ten treatments with three replicates per treatment (24 chicks / treatment). The total bacterial count and aerobic bacterial count were counted for chicken faces. The results of this study showed a decrease in the number of total air bacteria and the count of the colon bacteria under study by increasing the levels of *Laurus nobilis, Melissa officinalis* and mixture compared to control treatment. The study also showed the inhibitory effect on the count of colon bacteria and the count of air bacteria as affected by using different levels of *Laurus nobilis* compered to *Melissa officinalis* and the combination between them.

Keywords: *Melissa officinalis, Laurus nobilis,* Microbial, Broiler

Introduction

With the huge development in the application of poultry genetic improvement programs which reflected negatively on the vulnerability of low disease resistance, prompting the producers about the use of excessive drugs to reduce the incidence of diseases and reduce the proportion of losses, and that the use of antibiotics in poultry diets life as catalysts of growth has become prohibited in some EU countries (Ahmed Naji, 2007) because of its negative effects on the consumer's health and survival in the tissues of the body of the Poultry (Abaza et al., 2008).). Therefore, researchers have begun to find new ways of thinking would raise the body immunity and reduce Bacterial, viral and fungal diseases, among those means the use of medical herbs in poultry diets as normal medical materials Amina (this certainty is considered an important advantage. et al., 2008) among these herbs is Mellisa plant which is Evergreen plant belongs to the family interpretation and blossom abounding used his papers medical presence in South Europe and central regions of the world (Hussein, 2004 and Kabbani, 2004), It features this plant features a high proportion of the antioxidants, bacteria and viruses and tumors (Allhaverdiyer et al., 2004), and that the impact of the anti-bacterial dates back to the NOMADIC Ferulic acid in addition to the NOMADIC Rosmiarinic Tannins and polyphenols (Vokzalnaya Magistral 1 et al., 1993; Boyadzhiv and Vokzalnaya Magistral 1, 2006. The Javari and Sani (2016) that the oil extracted from the leaves of Mellisa effective against the types of bacteria B. peashy, S. aureus, E-coli and S. Enterica Mellisa also proved that the oil contains (48) mounted an effective Flavonide.

The Laurel plant, the Evergreen herbal plants belongs to the family (Lauraceae) and aromatic plants there are in the States of Asia Minor and North Africa (Al Nuaimi, 2010), the effectiveness of the anti-bacterial oxidation for many Fenolic complexes such as Thymol and Carvacrol and Cinnamaldehyde (erturk et al., 2006). Between

Vijayakumar and Shobiya (2016) that the license laurel papers role in discouraging the growth of bacteria and disincentives for Karam, such as S. aureus and P. aerugiuosa. Fdam noted and others (2016) that the addition of CRUSHED NOUGAT Mellisa papers level grotto 6.3 grams each feed to the Deleted Frog meat had improved the body weight the neighborhood weighting coefficient increase food conversion (p> 0.05) compared with the deleted control the paucity of studies in the field of impact of these herbal plants in the microbial qualities of Chick meat which is reflected on the productive performance so, this study is came out.

Materials and Methods

This experiment was conducted in one of the poultry fields of the Animal Production Department / Faculty of Agriculture / Anbar University in the alternative site (Abu Ghraib). The study lasted from 5/11/2016 to 10/12/2016 (35 days). In this study, 240 chickens of non-natural species (Ross 308) were used at one day, with an average weight of 40 g. The distribution of chicks was given to 10 (3) replicates per treatment (8 chick / replicate) and 24 chick / broth. The broiler was fed on an early feed and the final growth shown in Table (1) below.

The treatments were as follows:

1- T1 control treatment free of any additional.
2- T2 treatment control diet with the addition of *Melissa officinalis* at level of 2 gm/kg feed.
3- T3 treatment control diet with the addition of *Melissa officinalis* at level of 4 gm/kg feed.
4- T4 treatment control diet with the addition of *Melissa officinalis* at level of 6 gm/kg feed.
5- T5 Treatment control diet with the addition of *Laurus nobilis* at level of 2 gm/kg feed.
6- T6 Treatment control diet with the addition of *Laurus nobilis* at level of 4 gm/kg feed.
7- T7 Treatment control diet with the addition of *Laurus nobilis* at level of 6 gm/kg feed.
8- T8 treatment control diet with the addition of *Melissa officinalis* at level of 2 gm/kg feed + *Laurus nobilis* at level of 2 gm/kg feed.
9- T9 treatment control diet with the addition of *Melissa officinalis* at level of 4 gm/kg feed + *Laurus nobilis* at level of 4 gm/kg feed.
10- T10 treatment control diet with the addition of Melissa officinalis at level of 6 gm/kg feed + *Laurus nobilis* at level of 6 gm/kg feed.

Table 1. Percentage and chemical composition of the starter, grower and finisher diets used in the experiment

Ingredients %	Starter diet 1-11	Grower diet 12-22	Finisher diet 23-42
Yollow corn	62	64	66
(44 %) Soybean	31	29	26
Concentrate *	5	5	5
Vegetable oil	1	1	2
Limestone	0.7	0.7	0.7
Common salt	0.3	0.3	0.3
Total	100	100	100
Chemical composition*			
Digestible energy (ME Kcal/kg)	3029	3047	3131
% Protein	22.2%	21.4%	20.1
% Lysine	1.27	1.22	1.13
% Cystine +Methionine	0.87	0.85	0.82
% Clacium	0.61	0.61	0.60
%Available phosphorus	0.35	0.35	0.34

* The Brocorn-5 special W is produced by (ALBLASSERDAM HOLLAND WAFI B.V.) which contains 40 % raw protein, 5% raw fat, crude fiber 2,20 %, moisture 7,13 %, ash 28,32, calcium 4,50 %, phosphorus 2,65 %, available phosphorus 4,68 %, lysine 3,85 %, methionine 3,70 %, methionine + cystine 4,12 %, tryptophan 0.42 %, threonine 1,70 %, Assimilated energy 21.07, Selenium 2.30 % and Copper 4 %.
**According to the values of chemical composition by N.R.C (1994).

The health and preventive program recommended by the veterinarian has been followed throughout the trial period. Mellisa and Ghar were obtained from the local market of Baghdad (Shorja). The bacterial study was carried out in the laboratory of the Faculty of Agriculture / University of Baghdad. A stool model was used in the procedure of the total bacterial count, as well as the colon count from the use of decimals of the samples and

the use of N. Agar and Maconnky Agar media, which were equipped with Oxoid, 24% for 24 hours and for bacterial total airway and colon bacteria (Cruickshank, 1975).

The statistical analysis was performed using the Duncan (1955) multimode test at a significant level of 0.05.

Results and Discussion

Table (2) shows the effect of the addition of crushed Mellisa leaves at different levels to the diet in the preparation of total bacteria and the preparation of the colon bacteria where a significant decrease (p>0.05%) in the preparation of the bacteria under study is in line with the increased level of addition of crushed Mellisa leaves. It contains the essential oil of citral (Guginski, 2009). This compound has an antimicrobial character (Onawunmi, 1989) between patora, klimek, 2003 and Emamghoreishi, 2009. The Mellisa herb contains active ingredients including flavonoids such as luteolin, quercitrin and Rhammocitrin. The protection of cells and containing triterpenes mainly consists of ursolic and olenolic acid. The flavonoids effect of pathogenic malignant resurgence is due to their ability to form complexes with the external walls of bacteria and dissolved proteins. Flavonoids, which are lipid, can break and break up microbial membranes (Tsuchiya et al., 1996) As a Turbine ability to penetrate the cell wall of the bacteria and access to genetic material by its nature-loving fat (Helander et al., 1998).

Table 2. Effect of the addition of *Melissa officinalis* to the diet at different levels on the total bacteria count and colon bacteria

Treatment	Total bacterial g /count cell	Colon bacterial g /count cell
T1 Control	$2.88 \pm 125 \text{ X } 10^{88}$ a	$3.85 \pm 120 \text{ X } 10^{9}$ a
T2 *Melissa officinalis* 2 gm/kg	$2.78 \pm 110 \text{ X } 10^{8}$ b	$3.44 \pm 98 \text{ X } 10^{9}$ b
T3 *Melissa officinalis* 4 gm/kg	$2.65 \pm 87 \text{ X } 10^{8}$ c	$3.58 \pm 57 \text{ X } 10^{9}$ c
T4 *Melissa officinalis* 6 gm/kg	$2.45 \pm 58 \text{ X } 10^{8}$ d	$3.56 \pm 31 \text{ X } 10^{9}$ d

Table (3) shows the effect of adding larvae at different levels to the bush in the preparation of the total bacteria and the preparation of the colon bacteria where a significant decrease (p>0.05) is observed in the preparation of these bacteria under study and when increasing the level of addition of crushed leaves of laurel to the bush, It contains a variety of phenolic medicinal substances such as Carvacrol, Thymol, Cinnanaldehyde, Eugenol, Nonoterpenes, as well as an antioxidant class for containing these compounds as well as an anti-bacterial pathogen (Erturk et al., 2006)

Dalialioglu and Evrendilek (2004) explained that the Laurel leaf extract contains an effective ingredient, Tannin, and lantans. The ability to inhibit harmful bacterial enzymes by damaging the transport packaging in bacterial cells. The active laurel extract is effective against the Staphylococcus aureus. Tannins are also linked to the cellular wall Bacterial inhibits growth and inhibits the effectiveness of Protease (Robbins et al., 1983).

Table 3. Effect of the addition of *Laurus nobilis* to the diet at different levels on the total bacteria count and colon bacteria

Treatment	Total bacterial g /count cell	Colon bacterial g /count cell
T1 Control	$2.54 \pm 125 \text{ X } 10^{8}$ a	$3.85 \pm 120 \text{ X } 10^{9}$ a
T5 *Laurus nobilis* 2 gm/kg	$2.44 \pm 90 \text{ X } 10^{8}$ b	$3.44 \pm 98 \text{ X } 10^{9}$ b
T6 *Laurus nobilis* 4 gm/kg	$2.34 \pm 59 \text{ X } 10^{8}$ c	$3.58 \pm 57 \text{ X } 10^{9}$ c
T7 *Laurus nobilis* 6 gm/kg	$2.21 \pm 30 \text{ X } 10^{8}$ d	$3.56 \pm 31 \text{ X } 10^{9}$ d

Table (4) shows the effect of adding crushed milsa and laurel leaves at levels that are left to the bush in the preparation of total bacteria and the preparation of colon bacteria, where we note the reduction of the studied numbers of bacteria with significantly increased levels of addition of the mixture. The reduction of total bacterial and coliform bacteria has a significant effect on the microbial and health characteristics of meat breeds

and thus improves productivity performance (support and others, 2016). Melissa has an antioxidant effect and contains many phenolic compounds (luteolin, quercitrin, Tannin and Rhammocitrin) with the toxic effect of bacteria (Allahverdiyev et al., 2004). The leaves of Laurel also have antioxidant effect (Cinnamaldehyde, Carvacrol, Thymol) Some enzymes needed by bacteria (Erturk et al., 2006).

the results elucidated that, the higher morbidity and lower inhibition showed that the pathogenic bacteria feel the concentration of active compounds found in milsa and ghar and therefore the increased concentration of active compounds inhibitory bacteria directly contributes to the improvement of the current health of birds, which is reflected in the increase in production performance of meat And others, 2016).

Table 4. The effect of adding *Melissa officinalis* and *Laurus nobilis* at different levels to the diet on the total bacterial count and colon bacterial count

Treatment	Total bacterial g /count cell	Colon bacterial g /count cell
T1 Control	$2.54 \pm 125 \times 10^8$ a	$3.85 \pm 120 \times 10^9$ a
T8 *Melissa officinalis* 2 gm/kg+ *Laurus nobilis* 2 gm/kg	$2.91 \pm 87 \times 10^8$ b	$3.44 \pm 51 \times 10^9$ b
T9 *Melissa officinalis* 4 gm/kg+*Laurus nobilis* 4 gm/kg	$2.87 \pm 76 \times 10^8$ b	$3.63 \pm 30 \times 10^9$ c
T10 *Melissa officinalis* 6 gm/kg+*Laurus nobilis* 6 gm/kg	$2.83 \pm 46 \times 10^8$ c	$3.75 \pm 14 \times 10^9$ d

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