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The comparison effects of different levels of extract of Medicinal plants *Melissa officinalis* on efficiency, and safety carcass specification in broiler chickens

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ABSTRACT: This experiment was conducted to inquire the effect of usage distinct levels of extract of Medicinal plants Melissa (*Melissa officinalis*) in drinking water in contrast by an antibiotic growth assistant on the carcass traits and growth performance of broiler chicks. Birds were appointed to 5 treatments: antibiotic group receiving, control food, mg/kg Enrofloxacin10%, and 0.1, 0.2 and 0.3 % extract of Medicinal plants Melissa completed to drinking water feed conversion ratio of broilers were determined at d 1, 21 and 42, defined at the same periods, and Body weights was calculated accordingly. At day 42, two birds per replicate were sacrificed for determination of cadaver traits. Performance indices were not substantialy easily influenced by the dietary treatments at day 42. Carcass efficiency in broilers complemented with 0.3 % Medicinal plants Melissa extract in drinking water. In corollary, the statistical results of this discussion showed that addition of 0.3 % extract of Medicinal Melissa to drinking water show to have a positive impress on broiler efficiency productive per more decrease abdominal fat stored and carcass yield so, abdominal fat pad reduced in chickens complement with 0.3 % Medicinal plants in Water Consumption (P>0.05).

Key words: *Melissa officinalis*, immune response, blood parameter and broiler chickens.

INTRODUCTION

However, Problems such as loss of antibiotic Productivity along time and risk of left over in food of animal origin, with the possible expansion of bacterial insistence in humans, have concerned Consumer, Medicinal plants Melissa (*Melissa officinalis*) is a member of the Labiatae family and one of the world's oldest medicinal herbs, and is used in both Western and Eastern traditions. It is extensively used in herbal medicine and According to be specifically beneficial in structural the immune system and fighting secondary infections. *Mentha* extract Contains essential oil, saponins, glycosides, tannins and other components. Menthol is the main phenolic component in oil of *Melissa officinalis* which has antibacterial activities (Engberg *et al.,* 2000). Antibiotics growth promoters (AGP) have been augmented to animal diets to protect health, promote growth and maximize the genetic potential of poultry (Al-Ankari *et al.,* (2004), Toghyani *et al.,* (2010), Ocak *et al.,* (2008), Eyssen and DeSomer (1963)) creating a considerable problem for poultry production. After the ban of antibiotic growth promoters in the European Union countries many Replacement substances have been investigated for their potential to replace AGPs. Phytobiotics are considered as one behest alternative due to their high content of pharmacologically active Substances. Al-Ankari *et al* (2004) observed the beneficial efficacy of wild mint on broilers productive performance. On the other hand, Toghyani *et al* (2010) and Ocak *et al* (2008) also, Medicinal plants Melissa contain polyphenolic combination, and hence could possess potent antioxidant attributes did not observed any positive effect of dry Medicinal plants Melissa on carcass traits and broiler performance. The current study was designed to examine the efficacy of different levels of extract of Medicinal plants Melissa (*Melissa officinalis*) as an antibiotic growth promoter on carcass characteristics and growth performance in broiler chickens when used as complement in the drinking water.

MATERIALS AND METHODS

A. Animals and dietary treatments

Number of 240 day-old Ross 504 broilers were assigned to 4 replicates with 5 treatments. Each replicate consisted of 12 birds per box. Chicks Was raised on floor pens (140×140 ×100cm) for 6 wk and had open access to water and feed throughout the entire trial period. The room temperature in experimental house was retained at 31°C during the first week and gradually Decreased by 29C in the second and third weeks, and finally fixed at 20°C thereafter. Feed was Contains according to nutrient basic requirements of broilers provided by NRC (1994) and except added additives it was the same for all groups (Table 1).

The birds were fed a starter Ration from (d 0 to 21), and finisher Ration from (d21 to 42). The treatments were as follows: Treatment 1: Control (Without additives). Treatment 2: diet 5 mg/kg Enrofloxacin10% treatment 3 : 0.1 % extract Melissa supplemented to drinking water treatment 4 : 0.2 % extract of *Melissa* completed to drinking water. Treatment 5:0.3% extractive of Medicinal plants *Melissa* completed to drinking water.

Table1: The ingredient and calculated composition of basal starter, and finisher diets.

Item Ingredient, g/kg	Starter	Grower
Corn	584.2	584.8
Soy bean meal	315.8	300.7
Soy bean oil	25.2	55.0
Fish meal	45	30
Di calcium phosphate	9.3	8.0
$CaCO_3$	10.6	11.7
NaCl	2.0	2.9
Oyster shell	1	1
Trace mineral primix1	2.5	2.5
Vitamin premix1	2.5	2.5
DL-methionine	1.5	0.8
L-lysine	0.4	0
Calculated composition		
Metabolizable energy(kcal/kg)	3000	3000
Crude protein(g/kg)	215.6	200.0
Calcium(g/kg)	9.7	9.0
Available phosphorus(g/kg)	4.2	3.5
Methionine + cysteine(g/kg)	8.4	7.2
Lysine(g/kg)	12.7	11.2

1. Vitamin premix per kg of diet: vitamin A (retinol), 2.7 mg; vitamin D3 (Cholecalciferol), 0.05 mg; vitamin E (tocopheryl acetate), 18 mg; vitamin k3, 2 mg; thiamine 1.8 mg; riboflavin, 6.6 mg; panthothenic acid, 10 mg; pyridoxine, 3 mg; cyanocobalamin, 0.015 mg; niacin, 30 mg; biotin, 0.1 mg; folic acid, 1 mg; choline chloride, 250 mg; antioxidant 100 mg.

2. Mineral premix per kg of diet: Fe ($FeSO_4.7H_2O$, 20.09% Fe), 50 mg; Mn ($MnSO4.H_2O$, 32.49% Mn), 100 mg; Zn (ZnO, 80.35% Zn), 100 mg; Cu ($CuSO_4.5H_2O$), 10 mg; I (KI, 58% I), 1 mg; Se ($NaSeO_3$, 54.56% Se), 0.3 mg.

B. Data collection

Body weights of birds Diagnosed tighten at d 1, 21, and 42 of age feed conversion ratio (FCR), Feed intake and weight gain were recorded in different periods was calculated. Mortality was recorded as it occurred and was used to adjust the total number of birds to determine the feed conversion ratio (FCR) and total feed intake per broilers. At d 42, two male broilers per replicate randomly selected, based on the average weight of the group and sacrificed. Carcass yield was calculated by dividing eviscerated weight by live weight pancreas, gizzard, liver, and abdominal fat was gathered, weighed and calculated as a percentage of live body weight

C. Statistical analysis

Data on performance indices are summarized in Table 2. Statements of statistical significance are based on $P<0.05$ appropriate for a completely randomized design using the General Linear Model procedures of SAS Means were compared using Tukey test. The treatments had not any significant effect on daily weight gain and daily feed intake. The additives did not markedly ($P>0.05$) influence feed conversion ratios of chicks; nevertheless the most efficient FCR throughout the trial was observed in broiler chicks supplemented with 0.1 % extract of Medicinal plants (*Melissa*) in drinking water. No differences because of treatment effects were observed on mortality. Table 3 shows relative weight means (as a percentage of live weight at slaughter) of organs as a function of treatments. The carcass yield obtained in birds supplemented with 0.2 % or 0.3 % extract of Medicinal plants Melissa in drinking water was greater than other groups at 42 d of age ($P<0.05$). Abdominal fat pad significantly reduced ($P<0.05$) in broilers supplemented with 0.2 % or 0.3 % extract of Medicinal plants Melissa in drinking water compared to other groups. Gizzard, liver, and pancreas weights were not markedly affected by dietary treatments.

RESULTS AND DISCUSSION

Performance and gizzard, liver, and pancreas weights were not significantly influenced by the dietary treatments at d 42. In accord with our findings Ocak *et al.,* (2008) failed to monitor any significant effect of dry Medicinal plants Melissa on performance and carcass characteristics of broiler chicks.

Table 2: Effect of experimental diets on performance indices of broilers at different ages.

Dietary treatments						
Variables	**Control**	**Enrofloxacin10%**	**0.1 % extract**	**0.2% extract**	**0.3 % extract**	**SEM4**
DFI1						
0-21d	65.20	66.50	64.26	65.15	66.62	0.352
21-42d	152.25	154.18	161.7	176.50	170.70	0.379
0-42d	106.83	110.54	106.93	120.23	118.30	0.269
FCR2						
0-21d	1.86	1.86	1.8	1.86	1.89	0.015
21-42d	1.85	1.9	2	2.1	1.97	0.035
0-42d	1.85	1.88	1.85	1.99	1.93	0.022
DWG(g)3						
0-21d	35.1	35.80	35.70	35.02	35.25	0.254
21-42d	82.30	81.15	80.85	83.65	86.65	1.14
0-42d	57.70	58.8	57.80	60.42	65.30	0.610

1. Daily Feed Intake (g per bird per day). 2. Feed Conversation Ratio (g/g). 3. Daily Weight Gain (g per day) 4. Standard error of mean

Also, Toghyani *et al.,* (2010). reported no effect of dry Medicinal plants Melissa on broiler performance criteria. In contrast with our results Al-Ankari *et al* (2004) observed the positive effect of wild mint on performance of broiler chicks. In the present study Enrofloxacin10% supplementation had not any significant effect on broiler performance and carcass traits. The research conducted by Coates *et al* (1963) showed that antibiotics did not promote the growth of broilers raised in a germ-free environment as compared to those raised in a conventional environment. Also, Belay and Teeter (1994) reported an increase weight gain and saleable carcass in broilers supplemented with Enrofloxacin10%. Landy *et al* (2011a, 2011b, 2012) observed that Enrofloxacin10% had not any effect on performance evaluation criteria, whereas it is not in convention with the findings of Miles *et al.,* (1984). who find significant effects in using Enrofloxacin10% on performance of broilers. dietary supplementation of antibiotic Enrofloxacin10% growth promoter increased final body weight of broilers at 42 d of age. In addition, it is known that well-nourished, healthy chicks do not respond to antibiotic supplements provided that they are housed under clean and disinfected conditions, thus it is possible in present trial the treatments had not any beneficial effect on performance indices due to hygienic status of trial.

Table 3: Effect of experimental diets on carcass yield and internal relative organ weight of broilers at 42 d.

Dietary treatments						
Variables	**Control**	**Enrofloxacin10%**	**0.1 % extract**	**0.2% extract**	**0.3 % extract**	**SEM1**
Carcass	75.10b	76.25ab	76.80ab	77.15a	77.75a	0.309
Abdominal fat	2.45a	2.43a	2.50a	1.65b	1.59b	0.163
Gizzard	1.30	1.37	1.31	1.30	1.10	0.542
Liver	75	71	75	65	80	0.045
pancreas	17	12	19	17	12	0.008

1. Standard error of mean

Narimani-Rad *et al.,* (2011) reported that dietary supplementation of medicinal plants mixture (1% Oregano, 0.5% *Ziziphora* and 0.5% Medicinal plants Melissa) caused performance and carcass quality improvement via more weight gain increase in carcass yield and then decreases abdominal fat deposition. In accord with our results Toghyani *et al* (2010) reported that, use of Medicinal plants Melissa had not any significant effect on internal organ weights. Our results on carcass characteristics are consistent to those of Ocak *et al.,* (2008) who did not observe any marked effect of dry Medicinal plants Melissa on the internal organ weights of broiler chicks. A result, the results of this research showed that inclusion of 0.3 % extract of Medicinal plants Melissa to drinking water it would seem have a positive influence on birds performance productive via more decrease abdominal fat Sediment and carcass yield.

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