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(2018/ 1/ 10 2014/ 5 /6)

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(0.05 ≥P)

Effect of Thymus and Anis and Mixture on some Physiological and Productive Traits of Quail

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ABSTRACT

The experiment was carried out on quails (unsexed, one day old), to evaluate the effect of supplementation of thymus and anise to ration in physiological, productive traits, birds weight and divided to 4 treatments, three replicate and 20 birds for each replicate for 7 weeks. The experimental treatments were, T₁(control): reared on standard ration, T₂ reared on standard ration

supplemented thyme with 10 g/kg ration, T₃ reared on standard ration supplemented anise with 10 g/kg ration and T₄ reared on standard ration supplemented with 10 g thyme and 10g anise/kg ration.

Statistical analysis of data showed significant increase in live body weight and weight gain for T₄, and significant increase in feed intake in for T₂ and T₄. significant improvement in feed conversion ratio for T₃ and T₄. Also, improved mean egg weight, dressing percentage, heart, liver, gizzard, breast, thighs, wings and neck in 4th treatment. And 3rd treatment improved weight of carcass, red blood cell (T.RBC count), hematocrit values (PCV) and hemoglobin concentration (Hb), while decrease mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC). 2nd and 3rd and 4th treatment decrease glucose concentration and bacterium number in intestine, but show significant ($P \leq 0.05$) increase in total protein, albumin, globulin, triglycerides and cholesterol concentration. Also, length and improved 2nd, 3rd and 4th treatment egg quality. It concluded from this study that the thyme and anise plant supplement to dieted quail bird improved some of the physiological, productive and reproductive characters and egg quality.

Keywords: thyme, anise, quail, physiological parameter.

(2007)

(Ciffic *et al.*, 2005)

(Soltan *et al.*, 2008)

(*Thymus vulgaris L.*)

(Durranim *et al.*, 2007)

(Elisabeth and Francisco, 2002)

(Schwarz *et al.*, 1996) carvacol

; Jamros and Kamel, 2002)

(2006)

(Youdim and Deans, 1999)

(Bolukbasi and Erhan, 2007

(Williams and Losa, 2001) .(Ertas *et al.*, 2005 ;Hernandez *et al.*, 2004)

%85

(McGuggin *et al.*, 1997 Bayram *et al.*, 2007)

(Tanbance *et al.*, 2003)

(Pourgholamm *et al.*, 1999)

(Simsek *et al.*, 2007)

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pimpinella)

(*Thymus Vulgaris*)

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(*anisum*

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N.R.C

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(1994)

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57	40	50	
2.7	21		
5	10	15	
27.5	22	31	
1	2	3	
6.6	4.5	0.9	
0.4	0.5	0.1	
100	100	100	
24.46	20.16	24.04	
2833.85	2841.6	2992.8	/

(1994 N.R.C)

(42)

8 :

(Ethylene diamine tetra acetic acid) (E.D.T.A)

(°20 -)

() :

(Packed cell volume) (Campbell, 1995)
 (mean corpuscular hemoglobin) (mean corpuscular volume)
 .(Jain, 1986) (mean corpuscular hemoglobin concentration)

.(Biolabo, Maizy, France)

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Egg production -

.(H.D.P) (Hen Day egg Production)

6

24

SAS

(1960) Steel and Torrie

C.R.D

(2001)

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(Duncans,1955)

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

$$= Y_{ij}$$

$$= \mu$$

$$= t_i$$

$$= E_{ij}$$

(2)

(Barreto, 2007)

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(Cabuk *et al.*, 2003)

.(Fuller *et al.*, 1984)

(Cabuk *et al.*, 2003)

(2)

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.(Lee *et al.*, 2008)

(2002) Jamros و Kamel

.(Baryam *et al.*, 2007)

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	(/)	(/)	() (42)	(14)	
b0.13±4.78	c12.15±514	b0.49±107.48	b0.38±163.04	0.40±55.5	
ab0.04±4.93.	b5.27±562.22	b1.59±113.97	b1.1±168.59	0.66±54.61	(/ 10)
a0.18±5.37	a16.38±599.61	b0.89±111.70	b1.10±167.50	0.38±55.80	(/ 10)
ab0.11±5.10	a7.22±624.06	a3.96±122.38	a3.36±176.83	1.17±54.44	+ (/ 10+ 10)

.(0.05 ≥ P)

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hen day egg)

(3)

%H.D.P (production

(3) .(2006)

(Cabuk *et al.*, 2003 Hansel *et al.*, 1992)

% H.D.P

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(/)	()	()		% H.D.P	
3.46 a0.36±	10.68 ab0.22±	170.59 a21.12±	575.79 a12.25±	45.59 a4.40±	
4.24 a0.14±	10.12 b0.18±	151.26 a1.15±	641.03 a16.46±	54.75 a1.18±	(/ 10)
2.54 b0.16±	10.21 ab0.20±	215.22 a18.82±	552.80 a76.05±	59.35 a5.93±	(/ 10)
2.35 b0.24±	10.82 a0.17±	281.48 a27.43±	650.98 a4.13±	60.57 a5.15±	+ (/ 10+ 10)

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%	%	%	%	()	()	
1.51 c0.04±	1.91 b0.14±	0.88 c0.02±	70.13 b1.57±	133.60 b9.18±	202.93 12.46±	
1.79 b0.09±	2.27 b0.12±	0.92 bc0.02±	72.50 b3.11±	157.07 a6.34±	234.80 13.07±	(/ 10)

1.85 b0.11±	2.29 b0.09±	0.96 b0.01±	76.82 ab2.51±	162.17 a4.35±	227.23 12.54±	(/ 10)
2.27 a0.06±	3.59 a0.24±	1.11 a0.03±	80.30 a2.06±	159.07 a6.87±	216.95 6.58±	+ / 10+ 10 (

.(0.05 ≥ P)

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%	%	%	%	%	()	
23.39 0.96±	4.05 c0.25±	7.44 ab0.42±	19.81 ab1.28±	31.07 b2.07±	133.60 b9.18±	
22.17 0.67±	5.03 b0.21±	6.96 b0.37±	19.36 b0.65±	30.59 b1.88±	157.07 a6.34±	(/ 10)
21.68 0.52±	4.75 b0.12±	6.87 b0.13±	18.69 b0.52±	29.24 b0.86±	162.17 a4.35±	(/ 10)
23.77 0.97±	5.69 a0.12±	8.16 a0.20±	22.57 a0.95±	36.89 a1.00±	159.07 a6.87±	+ (/ 10+ 10)

.(0.05 ≥ P)

ويتضح من الجدول (6) تأثير إضافة الزعتر واليانسون على عدد كريات الدم الحمراء وحجم كريات الدم المرصوصة وتركيز الهيموكلوبين، حيث يشير إلى حصول انخفاض معنوي كريات كريات

كريات

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; Valerio *et al.*, 2001) C

.(Blumberg and McKay, 2002

(7)

(1999)

% 86.3

Cavacrol

.(Daniela Giuseppe,1993)

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(2002)

(2011)

(Newall *et al.*, 1996)

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%	(pg)	(cuu)	(100/)	%	³ /	
33.32 a0.54±	29.54 a1.34±	88.49 3.41±	11.43 b0.11±	34.33 b0.49±	3.91 b0.71±	
27.75 b0.55±	25.81 b0.94±	93.12 3.55±	12.48 a0.16±	45.16 a0.47±	4.86 a0.19±	(/ 10)
27.13 b0.79±	26.06 b0.41±	96.25 1.72±	12.55 a0.20±	46.33 a0.66±	4.81 a0.02±	(/ 10)
27.61 b0.15±	26.75 b0.65±	96.85 2.09±	12.75 a0.23±	46.16 a0.74±	4.77 a0.04±	(+ / 10+ 10)

(.0.05 ≥ P)

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(Bölkbası *et al.*, 2006)

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(Harborne *et al.*, 1975)

(Dcke, 2000)

(Sturkie, 2000)

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$\frac{+}{(/ 10+ 10)}$	$(/ 10)$	$(/ 10)$		
b2.88±209.30	ab5.62±220.65	ab2.78±215.76	a15.15±237.18	100/
a0.07±3.69	ab0.25±3.25	a0.31±3.32	b0.05±2.6	100/
ab0.01±1.58	an0.05±1.48	b0.04±1.36	c0.02±1.10	100/
a0.08±2.10	ab0.08±1.77	ab0.27±1.95	b0.07±1.50	100/
a0.06±1.32	a0.08±1.17	a0.15±1.41	a0.08±1.38	/
a49.92±360.00	ab23.10±274.96	ab62.32±236.64	b54.32±209.98	100/
a5.91±266.96	ab2.13±248.42	ab15.32±256.07	b32.06±215.05	100/

.(0.05 ≥ P)

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احتمال (0.05 ≥ P)

(Novero *et al.*, 1991)

(Dcke, 2000) (glandular and hormonal activity)

(2009)

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%	%	()	%	%	%	
b0.03±0.57	b0.03±0.63	c0.33±29.33	0.52±1.84	0.10±1.58	0.24±2.67	
b0.02±0.54	b0.06±0.61	b0.33±31.33	0.06±1.22	0.19±1.54	0.25±2.77	(/ 10)
ab0.09±0.68	b0.06±0.78	a0.66±33.66	0.12±1.45	0.10±1.87	0.20±3.34	(/ 10)
a0.02±0.79	a0.04±1.03	b0.57±32.00	0.06±1.52	0.13±1.89	0.18±3.42	+ (/ 10+ 10)

.(0.05 ≥ P)

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c0.009±0.39 +	bc0.009±0.43	a0.01±0.48	ab0.01±0.45	
(/ 10+ 10)	(/ 10)	(/ 10)		
a1.12±15.04	b0.29±11.94	b0.28±11.46	b0.14±11.00	()
a1.40±36.59	ab0.46±34.22	b0.90±32.82	b0.66±32.86	()
a0.79±27.94	b0.12±25.40	b0.26±25.61	b0.16±25.08	()
a0.62±7.88	b0.17±5.89	b0.23±6.06	b0.18±5.58	()
a0.21±4.24	b0.13±3.64	a0.22±4.20	ab0.05±4.07	()
a0.65±4.76	b0.10±3.65	b0.10±3.56	b0.10±3.43	()
a0.56±11.97	bc0.10±11.36	ab0.09±11.74	c0.11±11.07	()
a1.25±30.01	b0.85±26.00	b0.71±23.89	b0.09±24.17	()
a0.08±1.72	ab0.08±1.52	ab0.71±1.51	b0.09±1.34	()
a0.005±0.32	ab0.006±0.31	bc0.01±0.29	c0.01±0.27	()
a0.003±0.052	ab0.003±0.042	b0.002±0.038	b0.003±0.032	()
0.03±1.30	0.01±1.34	0.03±1.27	0.02±1.30	

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- Barreto, M.S.R. (2007). Uso de extratos vegetais como promotores do crescimento em frangos de corte [dissertação]. Piracicaba (SP): Universidade de So Paulo.
- Bayram, I.I.; Cetingul, S.; Akkaya, B.; Uyarlar, C. (2007). Effect of aniseed (*Pimpinella anisum* L.) on egg production, quality, cholesterol levels, hatching results and the antibody values in blood for laying quails (*Coturnix coturnix* Japanese). *E.mail : ibayram @aku.edu.tr* .
- Bolukbasi, S.; Erhan, M. (2007). "Effect of Dietary Thyme (*Thymus vulgaris*) on laying Hens performance and *Escherichia Coli* (E.coli) Concentration in Feces". Ataturk University, the Faculty of Agricultuer. Department of Animal Science, 25240. Erzurim. Turkey.
- Bolukbasi, S.C., Erhan, M.K.; Ozkan, A. (2006). Effect of dietary thyme oil and vitamin E on growth , lipid oxidation, meat fatty acid composition and serum lipoproteins of broilers. *South African J. Anim. Sci.*, **36**, 189-196.
- Cabuk, M.; Alcicek, A.; Bozkurt, M.; Imre, N. (2003). Antimicrobial properties of the essential oils isolated from aromatic plants and using possibility as alternative feed additives. II *National Animal Nutrition Congress*, 18-20 September. pp. 184-187.
- Campbell, T.W. (1995). Avian Hematology and Cytology. Second edition, MS, DVM. PhD. Iowa State press . Ablackwell Publishing Company.
- Ciftci, M.; Guler, T.; Dalkilic, B.; Ertas, O.N. (2005). The effect of anise oil (*Pimpinella anisum* L.) on broiler performance. *International J. Poult. Sci.*, **4** (11), 851-855.

- Dcke, J.A. (2000). "Handbook of medicinal Herbs". 2nd ed Boca Rotan, CRC. Press.
- Duncun, D.B. (1955). Multiple and multiple F test biometrics. **11**, 1-42.
- Durranim, F.R.; Sultan, A.; Ahmed, S.; Chand, N.; Khattak, F.M.; Durrani, Z. (2007). Efficacy of Aniseed Extract as Immune Stimulant and Growth Promoter in Broiler Chickens. *Paks . J. Biological Sci.*, **10** (20),3718-3721.
- Elisabeth, S.B.; Francisco, S. (2002). "Thyme". The genus thymus, medicinal and Aromatic plants. Industrial profiles. History of genus Thymus. 1 p.
- Ertas, O. N.; Guler1, T.; Ciftci 1, M.; DalkIIIc1, B.; Simsekz, U.G. (2005). The Effect of an Essential oil Mix Derived from oregano, clove and Anise on broiler performance. Faculty of Veterinary Medicine, University of Firat, 23119 elazig, Turkey.
- Fuller, R.; Cole, C.B.; Coates, M.E. (1984). The role of Streptococcus faecium in antibiotic – relieved grow depression in chickens, p. 395-404 . In M. wood bine ed), Abtimicrobial and agriculture. Butterworths, London.
- Giuseppe, R.; Daniela, B. (1993). Volatil flavor components of Sicilian origanum onites L. *Flavour Fragrance . J.* **8**,197-200.
- Hänsel, R.; Keller K.; Rimpler H.; Schneider, G. (1992). "Pimpinella. In: Hagers Handbuch der Pharmazeutischen Praxis". 5th ed. Volume 6: Drogen P-Z. Berlin-Heidelberg-New York-London: Springer-Verlag, 135-56.
- Harborne, J.B.; Mabry, T.J.; Mabry, H. (1975). The Flavonoids, Chapman and Hall, London.
- Hernandez, F.; Madrid, J.; Garcia, V.; Orenge, J.; Megias, M.D. (2004). Influence of Two plant Extracts on Broilers Performance, Digestibility, and Digestive organ size. *Poultry Sci.*, **83**, 169-174.
- Jain, N. (1986). "Ced : Schalms hematology lea and Febiger". U.S.A. , pp. 267-282.
- Jamros, D.; Kamel, C. (2002). Plant extracts enhance broiler performance. In non ruminant nutrition : Antimicrobial agents and plant extracts on immunity. *Health And Performance. J. Sci.* **80** (E.SUPPL.1), 41 p.
- Lee, D.; Ching –feng, W.; Shiau-Ru, L.; Ruo-chi, W.; hen-wei, W.; Bao-Ji, C. (2008). Growth performance, immune response and gastrointestinal health of Taiwn red-feathered native chickens fed diets supplemented with growth-promoting antibiotics. *J. Chin. Soc. Anim, Sci.*, **37**(4), 233-247 .
- McGuggin, M.; Hobbs, C.; Upton, R. (1997). "American Herbal Products Association's Botanical Safety handbook ". CRC press, Boca Raton, FL.
- McKay, D.L.; Blumberg, J.B. (2002). The role of tea in human health: An update. *J. Am. Coll. Nutr.*, **21**,1–13.
- National Research Council, (NRC), (1994). "Nutrient Requirements of Poultry". 9th ed., National Academy Press, Washington DC, USA.
- Newall, C.; Anderson, L.; Phillipson, J. (1996). "Herbal Medicines: A Guide for Health–Carepharmaceutics Prss". London, England.
- Novero, R. R.; Becj, M.M.; Gleaves, E.W.; Johnson, A.L.; Deshazer, J.A. (1991). Plasma progesterone, luteinizing hormone concentration and granulose cell responsiveness in heat stress hens. *Poultry Sci.*, **70**, 2335-2339.
- Pourgholamm, M.H.; Majzoob S.; Javadi M.; Kamalinejad M.; Fanaee G.H.; Sayyah, M. (1999). The fruit essential oil of *pimpinella anisum* exerts anticonvulsant effects in mice. *J. Ethn.*, 1999, 211-215.
- SAS. (2001). SAS / STAT User's Guide for Personal Computers. Release 6.12. SAS Institute Inc Cary Nc, U.S.A.
- Schwarz, K.; Evnst, H.; Ternes, V. (1996). Evaluation of anti-oxidative constituents from thyme. *J. Sci. Food Agric.*, **70**, 217-223.

- Simsek, U.G.; Ciftci, M.; Guler, T.; Ertas, O.N. (2007). The effect of dietary antibiotic and anise oil supplementation on body weight, carcass characteristics and organoleptic analysis of meat broiler. *Revue. Med. Vet.*, **158** (10), 514-518.
- Soltan, M.A.; Shewita, R.S.; El-Katcha, M.I. (2008). Effect of dietary anise seeds supplementation on growth performance, immune response, carcass traits and some blood parameters of broiler chickens. *Int. J. Poult. Sci.*, **7**, 1078-1088.
- Steel, R.G.D.; Torrie, J.H. (1960). Principles and Procedures of Statistics . Mc Graw - Hill Book . Co., Ine, New York, N. Y. 481 PP.
- Sturkie, P.D. (2000). "Avian Physiology". 5th ed., Springer Verlag. New York, Berlin Heeidellberg Tokyo.
- Tanbance, N.; Bedir, B.; Kirimer, N.; Baser, K.; Khan, Sl.; Jacob, M.R.; Khan, I.A. (2003). Antimicrobial compounds from Pimpinella species growing in turkey. *Planta Medical.* **69**, 933-938 .
- Valerio, J.R.; Kepa, L.G.; Pickwell, J.K.; Quattrochi, G.V. (2001). Induction of human NAD(P)H:quinone oxidoreductase (NQO1) geneexpression by the flavonol quercetin. *Toxicol. Lett.* **119**, 49– 57.
- Williams, P.; Losa, R. (2001). The use of essential oils and their compounds in poultry nutrition. *World poultry- Elsevier.*,**17**(4), 14-15.
- Youdim, K.A.; Deans, S.G. (1999). Beneficial effects of thyme oil on age-related changes in the phosphor lipid C and C polyunsaturated Fatty acid 20 22 composition of Various rat. *Biochimica et Biophysica Acta.*, **1438**, 140-146.