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Dietary integration with natural extract in rabbit: effects on growth performances and meat quality.

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In many countries of Europe rabbit meat is consumed for its nutritional characteristics (Dalle Zotte, 2014; Hernández and Gondret, 2006). Since the ban of the use of antibiotic as growth promoter, natural substances have been studied as alternative with antioxidant, anti-inflammatory (Korkina, 2007), antimicrobial and antiviral properties (Hashemi and Davoodi, 2011). The aim was to evaluate the effect of a dietary supplementation with natural extract mixture in growing rabbit on growth performances, carcass characteristics and *Longissimus lumborum* (LL) muscle parameters. The trial was performed at the Research Institute for Animal Production (Nitra, Slovak Republic) and lasted 42 days. At 35 days of age, 144 New Zealand White rabbits were randomly selected and divided in 3 experimental groups (4 rabbits/cage). The first fed a basal diet (C), the second (T1) and the third one (T2) received 0.3% and 0.6% of natural extract mixture, containing polyphenols from plants and seaweeds. Dietary integration with natural extract improve ($P < 0.05$) growth performances: Live weight (LW), Average daily gain (ADG), Feed intake (FI) and Feed conversion (FC) in T1 group (Table 1). The fatty acid (FA) composition of LL muscle was positively affected ($P = 0.037$) by natural extract supplementation with an increase of n-3 FA in T2 group than T1 and C. Cholesterol content did not differ between dietary treatments (37.38 mg/100g C vs 26.72 mg/100g T1 vs 35.19 mg/100g T2). Sensory analysis revealed that only the aroma was affected ($P < 0.05$) by dietary treatments.

Overall, these results highlight that dietary supplementation with natural extract mixture, containing polyphenols from plants and seaweeds enhance growth performances, carcass weight, improving LL muscle nutritional parameter.

Table 1: Productive performances on growing rabbit fed basal diet (C) and diet supplemented with two levels of natural extract (T1, T2).

	C	T1	T2	SEM	P-value
LW, g					
initial	830.2	846.0	789.4	21.02	0.161
21d	1860.9 ^a	1996.3 ^b	1825.3 ^a	44.15	0.024
42d	2655.9	2834.8	2725.2	52.40	0.066
ADG, g/d					
0-21d	49.1	54.8	49.3	1.848	0.062
21-42d	37.9	39.9	42.9	2.192	0.284
0-42d	43.5	47.4	46.1	1.156	0.067
FI, g/d					
0-21d	154.9 ^a	142.0 ^{ab}	136.8 ^b	5.07	0.046
21-42d	188.8	175.6	192.6	8.99	0.382
0-42d	171.8	158.8	164.7	6.54	0.379
FC, kg/kg					
0-21d	3.20	2.59	2.89	0.17	0.057
21-42d	5.03 ^a	4.41 ^b	4.58 ^{ab}	0.18	0.049
0-42d	3.94 ^{Aa}	3.35 ^B	3.60 ^b	0.11	0.003

^{a, b}, means with different letters are different ($P < 0.05$),

^{A, B} means with different letters are different ($P < 0.01$).

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