

Suez Canal University
Faculty of Agriculture
Animal Production Department



**Effect of Different Dietary Supplemental Antioxidant
Sources on Growing Rabbits Performance during
Summer Season**

By

Mahmoud Kamal Ahmed Hussein

**B.Sc. Agric. Sci. (Animal Production) Faculty of Agriculture,
Suez Canal University, 2008**

Thesis

Submitted in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF AGRICULTURE SCIENCE

IN

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LIST OF ABBREVIATIONS

Abbreviations	Description
ALT	Alanine aminotransferase
Apo	Apo lipoprotein
AST	Aspartate aminotransferase
AT	Ambient temperature
BW	Body weight
CAT	Catalase
CF	Crude fiber
CFM	Concentrate feed mixture
CLA	conjugated linoleic acids
COAT	Chestnut wood extract coated with plant oils
CP	Crude protein
CT	Condensed tannins
DM	Dry matter
DNA	deoxyribonucleic acid
EE	Ether extract
ENC	(supplied by Silva Extracts Italy)
FA	Fatty acids
FCR	Feed conversion ratio
FI	Feed intake
G	Globulins
g	Gram
g/d	Gram/day
GPx	Glutathione peroxidase
HDL	High- density lipoprotein
H	Hour
HT	Hydrolysable tannins
KO	knockout

LBW	Live body weight
LD	<i>Longissimus dorsi</i>
LDH	Lactate dehydrogenase
LDL	Low-density lipoprotein
MIN	Minute
NFE	Nitrogen Free Extract
NF_κB	Nuclear factor kappa B
NRC	National Research Council
Nrf2	Nuclear factor erythroid 2-related factor
NZW	New Zealand White rabbit
OH	Hydroxyl radical
PCV	Packed cell volume
PUFA	Polyunsaturated fatty acids
RBC	Red blood cell
RH	Relative humidity
ROS	Reactive oxygen species
Se	Selenium
SNPs	single nucleotide polymorphisms
SSR	simple sequence repeats
TA	tannic acid
T₃	Thyroid hormone
THI	Temperature-humidity index
TL	Total lipids
TMI	Transition metal ions
TNZ	The thermo-neutral zone
TP	Total protein
VLDL	Very-low-density lipoprotein
WBC	White blood cell
WG	Weight gain

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ABSTRACT

The current study compared the effect of dietary supplementation of potential antioxidants (vitamin E, selenium and hydrolysable tannins) on growth performances, carcass traits, and some blood serum metabolites of seventy growing NZW rabbits reared during summer season ($31.31 \pm 2^\circ\text{C}$). Weaned rabbits were equally distributed among seven dietary experimental treatments and fed *ad libitum* for eight weeks; a basal diet without supplemented antioxidants served as a control, the other six diets contained 100 or 200 mg vitamin E/kg diet, 0.1 or 0.2 mg Se/kg diet, 1.5 or 3.0 g hydrolysable tannins/kg diet. Results indicated that total live weight gain was not significantly affected by dietary treatments. Feed intake was significantly higher in control followed by vitamin E (100 mg/kg) groups, compared to other treatments. Feed conversion ratio was improved ($P < 0.05$) with 0.1 mg Se/kg diet (14.2%) and with 1.5 g tannins/kg diet (16.1%) compared to the control. None of the studied dietary supplements significantly affected carcass traits or blood serum metabolites of the rabbits. In summer season, the dietary supplementation with vitamin E (100 mg/kg), selenium (0.1 mg/kg diet) or tannins (1.5 g/kg diet) only improve rabbits feed conversion ratio.

Key words: Rabbit, vitamin E, selenium, tannins, summer, growth.