EFFECT OF OMEGA-3 FATTY ACIDS ON GROWING RABBITS PERFORMANCE

By

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B.Sc. Agric. Sc. (Poultry Production), Cairo University, 2008

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Approval Sheet

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ABSTRACT

Esraa Mohamed Abd EL Megeed Ali: Effect of Omega-3 Fatty Acids on Growing Rabbits, Performance. Unpublished Master of Science Thesis, Department of Poultry Production, Faculty of Agriculture, Ain Shams University, 2014.

Eighty weaning rabbits، (40 Baladi Black (BB) and 40 New Zealand White (NZW) rabbits) were investigated. They were maintained from weaning at 5 weeks to 13 weeks of age. Rabbits were randomly divided into five treatments (16 animals per treatment, four females and four males per treatment). Each treatment has an average weight of (685gm±10). Animals were assigned to five feeding groups The 1st group was fed the basal diet (control) while the 2nd,3rd, 4th and the 5th groups were fed the basal diet supplemented with 2% fish oil (FO), 2% linseed oil (LO), 1% fish oil and 1% linseed oil, 1% commercial Omega-3 (CO) respectively. All diets were supplemented with 200mg vitamin E/kg as α-tocopherol acetate to protect dietary fatty acid from oxidation.

The results showed that no significant differences between treatments in growth performance, dressing weight, percentages; carcass characteristics of meat, plasma biochemical analysis. Mortality rate, abdominal fat weight, moisture content of meat and lipid peroxidation, were significantly decreased in rabbits that fed different sources of Omega-3. The PUFAs concentration was significantly higher in the meat of treated groups compared with the control group. Dietary omega-3 addition to rabbits diet had a positive effect on humoral immunity response compared with control.

It was concluded that using diet enriched with different sources of Omega-3 PUFAs in growing rabbit's could improve meat quality; increase the omega-3 PUFAs content in meat and enhance the immune response in growing rabbits.

Key words: rabbit, fish oil, omega-3, vitamin E, mortality.

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LIST OF ABBREVIATIONS

AA	:	Arachidonic acid
ALA	:	Alfa linolenic acid
ALT	:	Alanine aminotransferase
AST	:	Aspartate aminotransferase
BB	:	Baladi Black
BW	:	Body weight
BWG	:	Body weight gain
°C	:	The degree Celsius
C	:	Control
cm	:	Centimeter
CLA	:	Conjugated linoleic acid
d	:	day
DE	:	Digestive energy
DHA	:	Docosahexaenoic acid
EPA	:	Eicosapentaenoic acid
FC	:	Feed conversion
FCR	:	Feed conversion ratio
FO	:	Fish oil
g	:	gram
h	:	Hour
HDL	:	high density lipoproteins
Ig	:	Immuno globulin
IU	:	International unit
Kcal	:	Kilo calorie
Kg	:	Kilo gram
LA	:	Linoleic acid
LBW	:	Live body weight
LDL	:	low density lipoproteins
LO	:	Linseed oil

MDA	:	malondialdehyde
M.E.	:	Metabolizable energy
mg	:	Milligram
min	:	Minutes
ml	:	Milliliter
mm^3	:	Cubic millimeter
µg	:	Micro gram
µL	:	Microliter
µm	:	Micron
MUFAs	:	Monounsaturated fatty acids
NZW	:	New Zealand White
P	:	Probability
PBS	:	Phosphate buffer solution
pH	:	Hydrogen ion concentration
ppm	:	Part per million
PUSFs	:	Polyunsaturated fatty acids
PTP	:	Plasma Total Proteins
Pxl	:	Pixel
RBCs	:	Red blood cells
r.p.m	:	Revolution per minute
SFAs	:	Saturated fatty acids
SRBC‘s	:	Sheep red blood cells
TBA-RS	:	Thiobarbituric acid-reactive substances
USFAs	:	Unsaturated fatty acids
VLDL	:	very low density lipoproteins
W	:	Weight
WHC	:	Water holding capacity
WOA	:	Week of age
%	:	Percent