PRODUCTIVE PERFORMANCE OF BARKI SHEEP FED ON RATIONS CONTAINING DRIED OR ENSILED OLIVE CAKE WITH OR WITHOUT FIBROLYTIC ENZYMES

BY

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B.Sc. Agric. Sci. (Animal Production), Fac. Agric., Cairo Univ., 2004
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APPROVAL SHEET

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Title of Thesis: Productive Performance of Barki Sheep Fed on Rations Containing Dried or Ensiled Olive Cake With or Without Fibrolytic Enzymes

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ABSTRACT

The aim of this work was to investigate the effects of replacing 50% clover hay by dried or ensiled olive cake with or without fibrolytic enzymes on feed intake, nutrients digestibility, nutritive values, performance of lactating Barki ewes and their lambs, some blood components and hormonal levels.

The first experiment: Twenty five rams divided into five groups (5 rams each) were used in experiment 1(digestion trial). The concentrate to roughage ratio was 60:40 and the animals were fed according to 4 % of body weight. Group one (G1; control) fed 60% concentrated feed mixture (CFM) and 40% clover hay (CH). Group two and three (G2 and G3) fed control diet with replacement of 50% of CH by dried olive cake (DOC), with adding fibrolytic enzymes (2g/h/d) to the diet of G3. The half quantity of CH was replaced by silage olive cake (SOC) in the diets of group four and five (G4 and G5), with adding fibrolytic enzymes (2g/h/d) only for G5. The second experiment, fifty five late pregnant Barki ewes (average 2-4 years and average body weight 45 kg) were used. Ewes were divided randomly to five equal groups and fed the experimental rations. The third experiment using twenty five of Barki male lambs (average body weight of 24kg ± 0.8kg and 4-5 months of age) were divided into 5 similar groups (5 lambs each) and were fed the experimental rations.

The digestibility of DM, OM, CF and NFE were insignificantly ($p>0.05$) improved in the experimental rations compared with the control. Digestion coefficient, of CP and EE in rations were higher significantly ($p<0.05$) compared to the control ration. The results showed that feeding ewes on rations containing the olive cake (DOC or SOC) yielded more milk and FCM compared with the control ration. The body weight at weaning of lambs and average daily gain (ADG) were higher in G3, G4 and G5 compared with the control. The alanin aminotransferase (ALT) values were insignificantly ($P<0.05$) different. While, There were significant differences ($P<0.05$) among treatments in aspartate aminotransferase (AST)**.** There was a significant increase ($p<0.05$) in cholesterol for rations containing olive cake compared with the control. There were insignificant decrease among treatments in total lipids compared with the control. Serum total thyroxin (T4) level of lambs at weaning was significantly lower among all groups compared with the control. The body weight gain and ADG were higher for lambs fed experimental rations compared with the control. Moreover, lambs fed experimental rations were higher in feed conversion ratio compared with control. Feed cost/kg gain was significantly ($p<0.05$) decreased in experimental groups compared with the control. The economic benefit were significantly higher ($p<0.05$) in experimental rations compared with the control.

It could be concluded that replacement of 50% of clover hay with dried or ensiled olive cake resulted in an improvement in the productive performance of lactating Barki ewes, of growing lambs and decreased the cost of feed/kg gain which is positively reflected on economical efficiency without any adverse effects on the physiological status of ewes or lambs. While, added fibrolytic enzymes has a positive effect on milk production specially in dried olive cake rations and did not have an impact on the growth rate of lambs. And according, it could be advised to use fibrolytic enzymes in milk production rather than in growing lambs.

Key words: Dried olive cake, olive cake silage, blood, digestibility, nutritive value, Barki sheep.

DEDICATION

Special deep appreciation is given to my parents, my brothers, my sisters, my beloved wife and my sons.

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LIST OF ABBREVIATIONS

symbol	mean
ADF	Acid detergent fiber
ADG	Average daily gain
ADIN	Acid detergent insoluble nitrogen
ADL	Acid detergent lignin
A:G	Albumin:globulin
AIA	Acid insoluble ash
ALT	Alanine aminotransferase
ANFs	Anti-nutritional factors
AST	Aspartate aminotransferase
BSC	Body condition scoring
BW	Body weight
CF	Crude fiber
CFM	Concentrate feed mixture
CH	Clover hay
CP	Crude protein
CSM	cotton seed meal
d	Day
DCP	Digestible crud protein
DM	Dry matter
DMI	Dry matter intake
DOC	Dried olive cake
EE	Exogenous enzymes
EFE	Exogenous fibrolytic enzymes

FA	Fatty acids
FAE	Ferulic acid esterase
FCM	Fat-corrected milk
FE	Fibrolytic enzyme
Fig.	Figure
g	Gram = 10^{-3} kg
GE	Gross efficiency
GOT	Glutamic oxaloacetic transaminase
GPT	Glutamic pyruvic transaminase
h	Head
IOOC	International Olive Oil Council
IU	International unit
kg	Kilogram = 10^{3} g
mg	Milligram = 10^{-3} gram
mL	Milliliter = 10^{-3} liter
N	Nitrogen
NDF	Neutral detergent fiber
NFE	Nitrogen free extract
NRC	National research council
OC	Olive cake
OL	Olive leaves
OM	Organic matter
OMI	Organic matter intake
OP	Olive pulp
OS	Olive stones
P4	progesterone