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Effect of some feed additives on productive and physiological performance in rabbits

BY

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List of Abbreviation

ABBREVIATION	MEANS
AGP ……..…….	Antibiotic Growth Promoters
EO ……..……	Essential Oil
NZW…….....	New Zealand White
PFA …….....	Phytogenic Feed Additives
PUFA …….	Polyunsaturated Fatty Acids
NFkB …….....	Nuclear factor “kappa light-chain-enhancer” of activated B cells
NRC …….....	Nutrient Requirement counsel
C……..	Control group(without supplementation)
T1…….	(Thyme 150 g/ton diet)
T2…….....	(Capsaicin 150 g/ton diet)
T3…….....	(Cinnamon 150 g/ton diet)
T4…….	150 g/ton diet mixture of (50 g Thyme, 50 g Cinnamon and 50g Capsaicin)
T5……	100 g/ton diet extract commercial mixture of (Thyme, Cinnamon and Capsaicin)
BW …….	Body weight
WG ……..	weight gain
Ppm……..	Part per million
FI …….	Feed Intake
FCR…….	Feed Conversion rate (ratio)
LDL ……	low density lipoprotein
HDL ……	high density lipoprotein
SGPT…….....	Serum glutamic-pyruvic transaminase
AAS ……	atomic absorption spectrophotometer
SGOT…….	serum glutamic-oxalo acetic transaminase
ALT……..	Alanine Amino Transferase
AST…….	Aspartate Amino Transferase
SGPT……	Serum glutamic-pyruvic transaminase
GIT …….	Gastrointestinal tract
ALP …….	Alkaline phosphatase
TAC……..	Total antioxidant capacity
SOD…….	Superoxide dismutase
MDA……	Malondialdehyed

SUMMARY AND CONCLUSION

This study was carried out at the rabbits Farm of Sakha Station, Animal Production Research Institute, Agriculture Research Center, Egypt, during the period from December 2017 until Fibril 2018.

The experimental design:-

Seventy two rabbits NZW of five weeks old divided into six groups of 12 rabbit each. So, six treatments were as follow:

1. Rabbits fed a pelleted basal diet with standard components control group (C).
2. Rabbits fed a pelleted basal diet with 150 gram Thyme /ton diet (T1).
3. Rabbits fed a pelleted basal diet with 150 gram Capsaicin /ton diet (T2).
4. Rabbits fed a Rabbits fed a pelleted basal diet with 150 gram Cinnamon / ton diet (T3).
5. Rabbits fed a pelleted basal diet with 150g (50g Thyme + 50g Capsaicin + 50g Cinnamon) /ton diet (T4).
6. Rabbits fed a pelleted basal diet with 100g *Extract 6930* [extracted commercial powder (Thyme + Capsaicin + Cinnamon)] /ton diet (T5).

Animals and housing:

Seventy two New Zealand White (NZW) rabbits of 5 week of age with initial weights of 700g were used for the study. The rabbits were randomly allocated to six treatments groups of 12 rabbits each. Each treatment was sub-divided into 4 replicates of 3 rabbits. Rabbits were similar, with respect to body weight and sex.

All rabbits were kept under the same managerial conditions. Feed and water were offered ad libitum. Individual live body weight and feed intake were recoded, while average gain and feed conversion ratio were calculated weekly from 5 to 13 weeks of age. Mortality and the clinical health status of all rabbits were monitored daily and mortality percentage was calculated.

At the end of growing period, three rabbits of 13 weeks of age were taken randomly from each treatment, fasted for 12 hrs. Weighed, slaughtered and weighed after complete bleeding, skinned and eviscerated. Before slaughtering, 6 ml of blood sample was taken from the ear vein with a sterile syringe.

The results indicated that:

1- The highest significant body weight from 5 to 13 weeks of age were recorded for rabbits fed basal diet supplemented with 150 g/ton diet consist of mixture (50 g Thyme + 50 g Cinnamon+ 50 g Capsaicin) high significant ($P \leq 0.01$) compared the other groups and the lowest body weights the control group.

2- Addition of 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) significantly ($P \leq 0.01$) increased body weight gain (BWG) compared to the other groups and the lowest of the body weight gain was recorded for rabbits fed diet without any supplementation control.

3- The highest significant a feed intake g/d (FI) from 5 to 13 weeks of age was recorded for rabbits fed basal diet without any supplementation (control group) comparing with the other experimental treatments.

4- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) caused improvement in the growth performance and FCR compared with the other treatments and control group**.**

5- The control group was recorded mortaility rate 16.7 % and decreased in treatment 150g/ton diet Cinnamon 8.3%.but no mortality could be observed during the experimental period in the other treatments

6- The highest significant ($P \leq 0.01$) carcass (%) BW were recorded for rabbits fed basal diet supplemented with 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) comparing with the other experimental treatments and the control group.

7- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) caused abdominal fat significantly ($P \leq 0.01$) decreased comparing with the other experimental treatments and the control group.

8- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) T4 caused kidney fat weight significantly ($P \leq 0.01$) decreased comparing with the control group.

9- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) caused improvement in the dressing % compared with the other treatments and control group, was recorded the rabbits Dressing % in the 84.9 % as the number.

10- Gastrointestinal Tract (GIT) and (BW) were increased significantly ($P \leq 0.01$) in the rabbits fed basal diet without any supplementation (control) compared with other treatments.

11- Addition 150 g/ton diet mixture (50 g Thyme + 50 g Cinnamon+ 50 g Capsaicin) caused improvement and was increased significantly ($P \leq 0.01$) in Cecum traits compared with other treatments and control group.

12- Addition a pelleted basal diet with 100g [extracted commercial mixture (Thyme+ Cinnamon+ Capsaicin)] due to high significantly ($P \leq 0.01$) in the PH Stomach compared with other treatments and control group.

13- Addition a pelleted basal diet with 100g and addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) due to high significantly ($P \leq 0.01$) in the PH Cecum compared with other treatments and control group.

14- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) significantly ($P \leq 0.01$) increased in the Total protein compared with other treatments and control group.

15- Addition 150 g/ton diet mixture (50 g Thyme + 50 g Cinnamon+ 50 g Capsaicin) due to high significantly ($P \leq 0.01$) increased in plasma Glucose, compared with other treatments and control group.

16- Addition 150 g/ton diet mixture (50 g Thyme + 50 g Cinnamon + 50 g Capsaicin) caused total lipids significantly ($P \leq 0.01$) decreased comparing with other experimental treatments and the control group.

17- Addition 150 g/ton diet mixture (50 g Thyme + 50 g Cinnamon + 50 g Capsaicin) caused total cholesterol significantly ($P \leq 0.01$) decreased was recorded the total cholesterol comparing with other experimental treatments and the control group.

18- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) due to high significantly ($P \leq 0.01$) increased in the density lipoprotein (HDL) and addition 100g [extracted commercial (Thyme+ Capsaicin+ Cinnamon)] /ton diet due to high significantly($P \leq 0.01$) increased in the density lipoprotein (HDL) compared to control group and other treatments.

19- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) due to high significantly (P≤ 0.01) increased in the Total antioxidant capacity (TAC) compared with control group and other treatments.

20- Addition 150 g/ton diet mixture (50 g Thyme+ 50 g Cinnamon+ 50 g Capsaicin) due to high significantly (P≤ 0.01) increased in the Superoxide dismutase (SOD) compared with control group and other treatments.

21- The best economical efficacy was obtained 1.70 in rabbit's fed150 g/ton diet mixture (50 g Thyme + 50 g Cinnamon + 50 g Capsaicin) and also, in rabbits fed 150 g/ton diet Thyme, while the lowest one was obtained for rabbits in the control group (0.67).

Conclusion

It could be recommended that, using of addition of medicinal plants (Thyme, Cinnamon and Capsicum) as mixture 150 g/ton diet (50 g Thymol +50 g Cinnamonon+50 g Capsaicin), improved growth performance, physiological response, and economic efficiency and can be used as antimicrobials in rabbit's diet.