

EFFECT OF KEMZYME ON THE PERFORMANCE OF GERMAN ANGORA WEANERS

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Abstract - Kemzyme - a mixture of 5 potent enzymes was added at 0, 25, 50, 75 and 100 g/Q in the diet of weaners German Angora rabbits. As compared to control, improvement ($P \leq 0.05$) in 84 days weight, feed conversion ratio and wool yield (3 shearings) was 47.06, 33.78 and 14.62 percent, respectively in the 75 g. supplemented group. The digestibility of organic nutrients also improved showing that this level was beneficial in feeding of weaners angora rabbits.

INTRODUCTION

Rabbit digestive tract is adapted to the utilization of fibrous feeds but not to fibre itself. The bulk provided by the fibre, though poorly digestible, helps in preventing enteritis and the formation of hair balls in rabbits. Encouraging results were reported by supplementing enzymes in poultry diets (HASSELMAN *et al.* 1981 ; PETTERSON *et al.* 1990). Kemzyme is claimed to have α -amylase, β -glucanase, cellulase, lipase and protease. The current experiment was conducted to test its efficacy in the dietary of weaners angora rabbits.

MATERIAL AND METHODS

Thirty five, 42 days age weaned German Angoras, separated into 5 similar groups, individually received *ad libitum* up to 222 days, age a complete mash diet having concentrate : roughage ratio of 60:40 and drinking water in all wire hanging cages. Coarsely ground hay used was of mixed grass having 9.51 % CP on dry basis. Levels of Kemzyme used were 0 (control), 25, 50, 75 and 100 g/Q. mesh. Concentrate had (in parts) : maize, 40 ; deoiled groundnut cake, 30 ; wheat bran, 15 ; fish meal, 0.5 ; molasses, 0.8 ; mineral mixture, 1.5 ; common salt, 0.50 ; Lysomix and Methiomix @ 10g each/Q. feed. Daily feed intake and weekly body weights were recorded up to 3 months, when a metabolic trial was also given to all the animals, wool data of 3 shearings was recorded (initial, followed by 2 shearings at 90 days interval). Feed, faeces and urine samples were analysed for proximate principles as per A.O.A.C. (1984) ; fibre fractions as per GOERING and VAN SOEST (1970) and the data was analysed by completely randomized block design as per the methods given by SNEDECOR and COCHRAN (1967).

RESULTS AND DISCUSSION

Chemical composition of experimental diets is given in Table 1. All the nutrients were as per the permissible limits of NRC (1977) except crude fibre which was slightly on the higher side. Biological performance of broiler rabbits up to 84 days of age is given in Table 2. Body weight were higher in groups with Kemzyme level of 50 g and 75g/q as compared other treatments and control groups.

Significantly ($P \leq 0.05$) higher body weight (1257.1 ± 61.2 g) and gain in live weight (582.1 ± 44.5 g) was recorded in group fed 75g kemzyme in the diet. The feed conversion ratio was significantly ($P \leq 0.005$) improved by the addition of kemzyme and showed the best FCR (4.88 ± 0.10) as compared to other treatment groups. EL KATCHA *et al.* (1988) also reported better FCR in rabbits when fed diet supplemented with Kemzyme. The total wool yield was significantly ($P \leq 30.05$) higher in the treatment groups and was observed to be highest (144.2 ± 7.1 g) in group fed 75g/q of Kemzyme in both the shearing as compared to control group. The woolyield decreased (138.6 ± 7.7 g) with 100g of Kemzyme and was 14.62 percent higher in group fed 75g/q then in other treatments.

Table 1 : Physical and chemical composition of Experimental Diets

Physical Composition					
Feed Ingredients	Groups Supplemented With				
	Control	K ₂₅	K ₅₀	K ₇₅	K ₁₀₀
Rabbit Pellets*	60	60	60	60	60
Mixed Rye grass hay	40	40	40	40	40
Kemzyme (g)	-	25	50	75	100
Supplevit. M(g)	200	200	200	200	200

*Maize -40%, Deoiled groundnut cake -30%, Wheat bran -15%, Fish meal -5%, Molasses -8%, Mineral mixture - 1.5%, Common Salt -0.5%, Lysomix -10g/q, Methiomix -10g/q

Percent chemical composition of experimental diets

Nutrient	% on dry matter basis
DM	91.30
CP	15.81
CF	17.61
EE	2.69
NFE	54.18
Total ASH	9.71
Acid Insoluble ash	2.89
Calcium	2.26
Phosphorus	1.12
Acid detergent fibre	25.65
Neutral detergent fibre	54.47
Hemicellulose	28.82
Cellulose	19.19

Table 2 : Biological performance of angora rabbits fed different levels of Kemzyme

Parameter	Groups supplemented with				
	Control	Kemzyme 25g/q	Kemzyme 50g/q	Kemzyme 75g/q	Kemzyme 100g/q
No. of Animal	7	7	7	7	7
Weaning body wt. (g)	666.6 ± 48.9	675.0 ± 61.8	679.1 ± 34.0	675.0 ± 41.9	691.6 ± 59.0
84 day body wt	1045.8 ^a ± 50.2	1050.0 ^a ± 60.9	1125.0 ^{ab} ± 47.4	1257.1 ^b ± 61.2	1091.6 ^{ab} ± 60.3
Gain in Live wt (g)	395.8 ^a ± 26.9	383.3 ^a ± 30.8	445.8 ^{ab} ± 42.4	582.1 ^b ± 44.5	400.0 ^{ab} ± 40.7
Feed Intake (g)	2916.9 ^b ± 87.2	2730.5 ^a ± 40.5	2781.2 ^{ab} ± 41.6	2843.2 ^{ab} ± 86.4	2704.6 ^a ± 115.2
Feed conversion ratio	7.37 ^c ± 0.2	7.12 ^c ± 0.3	6.24 ^b ± 0.2	4.88 ^a ± 0.1	6.76 ^b ± 0.2
Wool yield : 2nd shearing (g)	41.6 ^a ± 3.9	42.5 ^a ± 5.0	43.3 ^a ± 1.5	50.0 ^b ± 2.1	41.1 ^b ± 2.0
3rd shearing (g)	84.2 ^{ab} ± 2.7	78.0 ^a ± 5.25	93.0 ^b ± 5.10	94.20 ^b ± 6.04	89.5 ^b ± 6.7
Total wool yield (g)	125.8 ^a ± 4.6	120.5 ^a ± 7.7	136.3 ^b ± 5.8	144.2 ^b ± 7.09	138.6 ^b ± 7.7

Figures bearing different superscripts in a line differ significantly (P ≤ 0.05)

Digestibility and balance of different nutrients is given in Table 3. The DM, CP, CF and EE digestibility varied significantly ($P \leq 0.05$) among the treatment groups. The DM digestibility was highest in group fed 75g Kemzyme where as CP and EE digestibility was observed to be higher in group fed 25g Kemzyme/q.

From this experiment it is concluded that Kemzyme feeding at 75 g/q of feed gave higher body weight, better feed conversion ratio and better wool yield as compared to all other doses.

Table 3 : Digestibility Coefficients (%) and balance of nutrients in rabbits fed different levels of Kemzyme

Nutrients	Digestibility Coefficients (%)				
	Control	Kemzyme 25g/q	Kemzyme 50g/q	Kemzyme 75g/q	Kemzyme 100g/q
DM	43.9 ^{ab} ± 2.3	43.0 ^{ab} ± 1.0	40.3 ^a ± 2.1	49.4 ^b ± 1.2	45.4 ^b ± 2.2
CP	47.3 ^a ± 3.2	55.0 ^b ± 2.6	49.4 ^a ± 4.0	50.5 ^a ± 2.2	51.3 ^a ± 1.9
CF	4.5 ^a ± 0.6	6.6 ^{ab} ± 0.8	5.3 ^{ab} ± 0.2	7.8 ^b ± 0.9	7.6 ^b ± 1.0
EE	40.9 ^a ± 0.5	53.4 ^b ± 3.8	44.6 ^a ± 6.2	52.6 ^b ± 4.3	45.3 ^a ± 2.6
NFE	26.1 ± 3.9	28.7 ± 5.6	23.0 ± 5.6	28.0 ± 2.1	29.2 ± 2.0
<i>Nutrient Retention (% of intake)</i>					
Nitrogen	33.6 ^a ± 1.3	43.9 ^b ± 2.3	37.4 ^a ± 4.5	38.6 ^a ± 1.8	37.8 ^a ± 2.3
Calcium	24.0 ± 4.8	23.1 ± 4.8	22.1 ± 1.8	21.6 ± 3.8	25.8 ± 2.3
Phosphorus	27.6 ± 1.4	35.1 ± 4.0	28.3 ± 1.3	28.4 ± 2.2	30.2 ± 2.4

Figures bearing different superscripts in line differ significantly ($P \leq 0.05$)

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