Table 1: Feed ingredients and chemical composition of experimental diets (%DM basis).

Feed Ingredients (%)	Control	Without enzyme			With enzyme		
		20%FS	40%FS	60%FS	20%FS+E	40%FS+E	60%FS+E
Clover hay	34	27.2	20.4	13.6	27.2	20.4	13.6
Fenugreek straw	-	6.8	13.6	20.4	6.8	13.6	20.4
Yellow corn	20	20	12	12	20	12	12
Barley	7	7	13	8	7	13	8
Soybean meal (44%CP)	16	17	17	18	17	17	18
Wheat bran	19	18	20	24	18	20	24
Molasses	2	2	2	2	2	2	2
Di- Ca- phosphate	1	1	1	1	1	1	1
DL-Methionine	0.4	0.4	0.4	0.4	0.4	0.4	0.4
NaCl	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Vit.-Min. premix*	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total	100	100	100	100	100	100	100
Chemical composition(%DM basis)							
DM	87.88	88.30	87.68	86.98	88.30	87.68	86.98
OM	90.33	90.88	90.60	90.77	90.88	90.60	90.77
CP	17.03	17.12	17.05	17.24	17.12	17.05	17.24
CF	12.65	12.89	13.53	13.99	12.89	13.53	13.99
EE	2.40	2.38	2.46	2.42	2.38	2.46	2.42
NFE	58.25	58.49	57.56	57.12	58.49	57.56	57.12
Ash	9.67	9.12	9.40	9.23	9.12	9.40	9.23
Methionine	0.64	0.63	0.62	0.61	0.63	0.62	0.61
Lysine	0.85	0.83	0.82	0.82	0.83	0.8	0.82
Calcium	0.76	0.76	0.77	0.75	0.76	0.77	0.75
Available Phosphours	0.63	0.61	0.60	0.62	0.61	0.60	0.62
Digestible energy (Kcal/Kg DM)	2675	2660	2621	2600	2660	2621	2600

*Mineral and vitamin mixture supplied per kg of diet: vitamin A 10,000 IU, vitamin D3, 1,800 UI; vitamin E, 15 mg; vitamin K3, 4.5 mg; vitamin B1, 0.5 mg; vitamin B2, 4 mg; vitamin B12, 0.001 mg; folic acid, 0.1 mg; pantothenic acid, 7 mg; nicotinic acid, 20 mg; I, 1 mg; Mn, 60 mg; Cu, 5.5 mg, Zn, 75 mg; Fe, 40 mg; Co, 0.3 mg; Se, 0.08 mg; Robenidine, 52.8 mg, antioxidant, 0.250 mg

FS: Fengreek straw**, FS+E:** Fengreek straw +Enzyme

Table 3. Growth performance of rabbit groups fed the experimental diets.

Items	Control	Without enzyme			With enzyme			±SEM	Pr<F
		20%FS	40%FS	60%FS	20% FS	40% FS	60% FS		
No. of rabbits	12	12	12	12	12	12	12		
Initial body weight (g/rabbit)	743.50	734.08	737.92	724.58	738.42	725.58	724.83	35.25	0.99
Final body weight (g/rabbit)	1816^{b}	1819^{b}	1880^{b}	1674^{b}	1855^{b}	2112^{a}	1787^{b}	79.98	0.01
Average daily weight gain (g/rabbit/day)	21.69^{b}	22.23^{b}	23.31^{ab}	18.99^{b}	22.69^{b}	27.99^{a}	21.85^{b}	1.77	0.04
Average Feed intake (g/rabbit/day)	85.30	84.62	83.99	84.19	85.68	83.85	84.71	0.67	0.04
Feed Conversion Ratio (g feed/g gain)	4.32^{a}	3.94^{ab}	3.91^{ab}	4.86^{a}	4.16^{ab}	3.09^{b}	4.33^{a}	0.38	0.07

a,b, Mean values with the same letter within the same row did not differ significantly (P>0.05).

Table 4. Digestibility coefficients and nutritive values of the experimental diets

Items	Control	Without enzyme			With enzyme			±SEM	Pr<F
		20% FS	40% FS	60% FS	20% FS	40% FS	60% FS		
Digestion coefficient (%)									
DM	66.83^{ab}	64.52^{b}	70.35^{a}	67.74^{ab}	70.68^{a}	71.00^{a}	66.70^{ab}	1.65	0.10
OM	68.08^{bc}	66.79^{c}	72.63^{ab}	69.32^{abc}	72.16^{ab}	73.30^{a}	67.73^{bc}	1.49	0.03
CP	69.35^{ab}	67.79^{b}	72.43^{ab}	71.00^{ab}	73.27^{a}	73.75^{a}	69.42^{ab}	1.56	0.12
CF	45.94^{b}	45.37^{b}	55.73^{a}	50.80^{ab}	56.34^{a}	56.37^{a}	45.58^{b}	2.77	0.02
EE	73.07^{bcd}	70.70^{d}	77.90^{ab}	73.32^{bcd}	76.61^{abc}	78.44^{a}	72.22^{cd}	1.55	0.01
NFE	72.32^{bc}	71.06^{c}	77.25^{a}	73.18^{abc}	76.27^{ab}	77.39^{a}	71.94^{bc}	1.46	0.02
Nutritive value (%)									
DCP	10.66	10.78	10.68	11.21	10.70	10.79	10.99	0.18	0.35
TDN	64.12^{ab}	63.22^{b}	66.15^{ab}	65.56^{ab}	68.70^{ab}	69.57^{a}	64.12^{ab}	1.63	0.10
DE	2840^{ab}	2800^{b}	2930^{ab}	2904^{ab}	3043^{ab}	3081^{a}	2840^{ab}	72.37	0.10

a,b,c--- Means in the same row with different superscripts are significantly different (P<0.05).

Table 5. Effect of the experimental diets on cecum characteristics of growing rabbits.

Item	Control	Without enzyme			With enzyme			±SEM	Pr<F
		20%FS	40%FS	60%FS	20%FS	40%FS	60%FS		
Ammonia (mg/100ml)	58.80	76.53	71.87	75.60	68.13	46.67	52.27	10.52	0.33
TotalVFA (mleq/100ml)	5.06^{bc}	5.93^{a}	4.91^{c}	5.11^{bc}	4.63^{d}	5.17^{b}	5.84^{a}	0.07	0.001
Cecum microbial counts (log cfu/ml)									
Total bacterial count (log cfu/ml)	6.52^{c}	6.71^{c}	7.76^{b}	8.71^{a}	6.81^{c}	7.13^{bc}	7.33^{bc}	0.27	0.008
Cellulolytic count (log cfu/ml)	7.10^{bc}	7.30^{b}	6.87^{cd}	7.27^{b}	6.73^{d}	7.74^{a}	7.64^{a}	0.09	0.0001

a,b,c,… Means values with the same letter within the sam row did not differ significantly (P>0.05).

Table 6. Effect of the experimental diets on blood constituents.

Item	Control	Without enzyme			With enzyme			±SEM	Pr<F
		20% FS	40% FS	60% FS	20% FS	40% FS	60% FS		
Cholesterol (mg/dl)	97.10	90.04	82.13	90.67	82.25	72.34	89.18	23.32	0.99
Creatinine (mg/dl)	1.13^{bcd}	1.17^{abc}	1.13^{bcd}	1.01^{d}	1.09^{cd}	1.24^{ab}	1.29^{a}	0.044	0.008
Glucose (mg/dl)	110.14	96.27	100.29	101.34	114.02	116.25	120.0	10.79	0.63
AST (U/I)	27.67^{bc}	30.22^{a}	28.14^{abc}	26.85^{c}	28.53^{abc}	29.37^{ab}	27.37^{bc}	0.63	0.027
ALT (U/I)	10.63^{ab}	11.01^{ab}	9.05^{b}	8.95^{b}	9.69^{ab}	12.18^{a}	11.21^{ab}	0.89	0.168

a,b,c… Means values with the same letter within the same row did not differ significantly (P>0.05).

Table 7. Effect of the experimental diets on Carcass traits

Items	Control	Without enzyme			With enzyme			±SEM	Pr<F
		20%FS	40%FS	60%FS	20%FS	40%FS	60%FS		
Fasted animal(g)	1853.33	1892.66	2043.0	1936.66	1955.33	2058.0	1930.0	86.20	0.45
Carcass weight(g)	1115.0	1148.33	1285.0	1143.33	1188.33	1306.66	1200.66	59.55	0.25
Dressing %	60.17 ^{c}	60.62 ^{bc}	62.94 ^{ab}	62.14 ^{abc}	60.77 ^{bc}	63.49 ^{a}	62.16 ^{abc}	0.80	0.07
Length (cm)									
small intestinal	199.0 ^{b}	285.66 ^{a}	185.66 ^{b}	246.0 ^{ab}	195.00 ^{b}	198.33 ^{b}	214.66 ^{b}	20.14	0.03
large intestinal	128.0 ^{ab}	139.33 ^{ab}	82.33 ^{c}	95.66 ^{bc}	155.66 ^{a}	100.33 ^{bc}	136.33 ^{ab}	13.13	0.01
Fat Proportion (%)									
Abdominal fat	2.05	1.10	2.22	2.04	1.77	1.86	2.04	0.36	0.45
kidney fat	0.74 ^{a}	0.39 ^{b}	0.63 ^{ab}	0.75 ^{a}	0.36 ^{b}	0.49 ^{ab}	0.58 ^{ab}	0.097	0.07

a,b,c Means values with the same letter within the same row did not differ significantly (P>0.05).

Table 8. Effect of experimental diets on the economic efficiency.

Items	Control	Without enzyme			With enzyme		
		20%FS	40%FS	60%FS	20%FS	40%FS	60%FS
Average total weight gain/rabbit(kg)	1.0725	1.0755	1.1365	0.9305	1.1115	1.3685	1.0435
Total revenue /rabbit (LE)*	26.81	26.88	28.41	23.26	27.78	34.21	26.08
Total cost of feed/rabbit (LE)	7.68	7.26	6.90	6.36	7.87	7.40	6.91
Net revenue/rabbit (LE)	19.14	19.63	21.51	16.90	19.92	26.82	19.18
Economic efficiency(EE)**	2.49	2.70	3.12	2.65	2.53	3.63	2.77
Relative economic efficiency	100.00	108.45	124.98	106.51	101.61	145.47	111.29

***** The preliminary price per Kg live body weight of the rabbit at the time of the experiment.

****** EE = Net revenue / Total cost of feed/ rabbit (LE).

*** REE = EE of treatments other than the control/ EE of the control group.