

Effect of Sunflower cake inclusion on certain blood biochemicals of Japanese quails

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Abstract

A week old 120, Japanese quail chicks were equally and randomly distributed into four different treatment groups (T0, T1, T2 and T3), of three replicates having 10 chicks in each. All the chicks were reared on saw dust litter upto six weeks of age. The chicks in control group-T0 were fed corn-soya based diet with multi-enzyme and group T1, T2 and T3 were fed on diets containing 10, 20 and 30 per cent replaced soybean cake by sunflower cake with multi-enzyme supplementation, respectively. The significant ($P < 0.01$) differences were noticed between the treatments for weekly live body weights upto sixth week. The blood-biochemicals viz., serum glucose, serum total protein and serum cholesterol level did not varied significantly. It was concluded that inclusion of sunflower cake do not have any adverse effect on blood-biochemical parameters however supplementation of multi-enzyme improves numerically the growth performance of Japanese quails.

Key Words: Japanese quails, Sunflower cake, Multi-enzyme, Blood-Biochemical profile.

Introduction

Quail constitute the largest avian species in our country used for commercial meat production (Banerjee, 1997). The major input cost involved is on feeding and to reduce this, many attempts are made by research workers. The sunflower cake is one of the source which is available extensively in Karnataka, Maharashtra and Andhra Pradesh. Because of its high fibre content its utilization in avian diet is limited, still to reduce feed cost it is included with enzyme supplementation. The blood bio-chemical picture indicates bird health status from consumption point. Hence, study was planned to know the effect of sunflower cake on certain blood bio-chemicals of Japanese quails.

Material and Methods

The experimental diets, starter and finisher were formulated (Table 1) as per BIS (1992) standards and were isocaloric and isonitrogenous. The dietary treatments were control- T0 Corn soya based diet with multi-enzyme. T2, T3 and T4 were 10, 20 and 30 per cent replacement of soybean by sunflower cake with multi-enzyme supplementation. Feeding was carried out upto 6th week of age and serum was collected from six birds of each treatment at the end of experiment. Blood

bio-chemicals were estimated using Auto Span Diagnostic Analyser. Serum glucose was estimated by enzymatic GOD and POD method (Tietz, 1976), serum total protein by modified Biuret and Dumas method (Vanzidis, 1977) and serum Cholesterol by CHOD-PAP method. The data collected was analysed as per Snedecor and Cochran (1994).

Results and Discussion

The mean live body weight at 6th week of age (Table 2) in different treatment showed non-significant variation however significant ($P < 0.01$) differences were noticed for mean weekly live body weight upto 6th week. It was also observed that quails can perform better upto 20 per cent replacement level where as higher (30%) level affect the growth adversely. The feed conversion efficiency decreases with increasing level of sunflower cake.

The blood bio-chemical parameters (Table 3) revealed non-significant differences for serum glucose, total protein and serum cholesterol. The findings in the present study corroborate with Joshi and Bhuvnesh kumar (1987) on Liv-52 supplemented diet in quails. Though the statistical differences were non-significant, inclusion of sunflower cake affected the serum glucose, total protein and serum cholesterol level

Table-1. Composition of starter and finisher ration (% basis)

Sr.No.	Ingredients	Starter				Finisher			
		Control	10%	20%	30%	Control	10%	20%	30%
1	Maize	46	43.5	41	38	54.6	53	51.7	51
2	Soyabean meal	50	44	14	35	38	34.2	30.4	26.4
3	Sunflower meal	0	5	10	15	0	3.8	7.6	11.4
4	Fish meal	0	3.5	5	8	0.4	2.2	4.3	6.5
5	DORB	0	0	0	0	3	2.8	2	0.6
6	Trace Mineral Mixture	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
7	DCP	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
8	LSP	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
9	Vitamin Mixture	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10	Salt	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11	Total	100	100	100	100	100	100	100	100
12	CP	27.80	27.92	27.94	28.20	23.90	23.85	23.72	23.97
13	ME	2801	2806	2802	2800	2800	2801	2806	2800
14	E/P ratio	100.75	100.50	100.28	99.25	117.15	117.44	118.29	116.81

Table-2. Performance of quails.

Weeks	Treatments			
	(Control) T0	T1	T2	T3
Initial live BW	34.75± 0.72	36.00± 0.62	35.73± 0.36	34.42± 0.56
Final live BW	229.82± 0.73	227.18± 5.24	230.45± 0.29	218.07± 5.60
FCE	3.39± 0.67	3.46± 0.67	3.77± 0.82	3.95± 0.86

Table-3. Blood biochemicals

Parameters	Treatments			
	(Control) T0	T1	T2	T3
Serum glucose	279.23±16.76	258.78±9.92	251.98±18.31	244.73±16.99
Serum total protein	4.50 ± 0.64	4.31 ± 0.69	4.38 ± 0.44	4.11 ± 0.37
Serum Cholesterol	246.90 ± 2.96	229.16 ± 4.83	231.12 ± 4.08	221.45 ± 6.95

numerically. The higher inclusion level of sunflower cake markedly reduced the cholesterol level. Overall inclusion of sunflower cake in quails diet did not affect blood bio-chemicals however, supplementation of multi-enzyme support growth with low input protein source.

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