

Effect of dietary supplementation of Shatavari (*Asparagus racemosus wild*) On haematobiochemical parameters of broilers

Rekhate, D.H. *, Smita Ukey, Leena N. Mangle and Deshmukh, B.S.

Department of Animal Nutrition
Post Graduate Institute of Veterinary and Animal Sciences, Akola
(Maharashtra Animal and Fishery Sciences University, Nagpur-444 006)
* Corresponding author

Abstract

Eighty, day old straight run commercial broilers chicks were randomly distributed into four groups (T1, T2, T3 and T4) of two replications having ten chicks in each, reared on deep litter system upto 8 weeks of age. The chicks in all the treatment groups were fed basal diet T1 control and T2, T3 and T4 groups were fed basal diet + 0.5, 1.00 and 1.5 per cent Shatavari root powder (SRP) respectively. Significant ($P < 0.01$) improvement in live body weight of broilers was observed between the treatments. Better FCE was observed with the increase in SRP. The digestibility of protein found significantly ($P < 0.01$) better with higher inclusion level of SRP. Hb, total serum protein, albumin and globulin revealed significant ($P < 0.01$) variation between the treatments. It was concluded that supplementation of Shatavari root powder at 0.5, 1.00 and 1.5 per cent level improves growth performance and general health status of broilers however, 1.0 per cent level could be more economical.

Key words: broilers, Shatavari, haematobiochemical.

Introduction

Feed supplement or additive is a substance or mixture used in minor quality other than basic feed in order to complement certain nutrients for improving performance of the birds (Narhari, 1992). A variety of products are used in poultry to enhance performance. Further, restricted use of antibiotics diversified the use of biological and herbal products under nutraceuticals. The tuberous roots of Shatavari (*Asparagus racemosus wild.*) are well known for its galactogogue and anabolic activity (Chopra et al.1956 and Chopra et al.1958) and it appears in many Ayurvedic preparations as growth promoters and immuno-stimulant. In view of this, efforts were made to study the effect of Shatavari supplementation on certain haematobiochemical parameters of broilers.

Material and Methods

Eighty, day old straight run commercial broilers chicks were randomly distributed into four groups of two replications having ten chicks in each. The chicks were reared on deep litter system for 8 weeks of period. The dietary treatments were T1- basal diet control, T2- basal diet + 0.5 per cent Shatavari root powder (SRP), T3 – basal diet + 1.0 per cent SRP and T4- basal diet + 1.5 per cent SRP. The basal diet was formulated as per

BIS standards (22% CP and 2900 Kcal ME/kg of feed) using maize 55, soybean 31, rice bran 3, fish meal 8, mineral mixture 3 per cent and vitamin mixture (Rakshamix) at the rate 100 mg/ MT over and above formulated diet. The chemical analysis of treatment diets was carried out as per AOAC (1990) and presented in Table 1.

Table 1 Chemical composition of treatment diet in addition to Shatavari root powder (SRP).

Nutrients (%)	T1	T2	T3	T4
CP	22.18	22.24	22.31	22.58
EE	4.04	4.048	4.056	4.06
CF	3.34	3.39	3.45	3.51
NFE	64.02	63.90	63.73	63.59
Total ash	6.42	6.43	6.45	6.46
ME Kcal/ kg	2868.8	2888.37	2908.29	2928.00

For haematobiochemical studies, Blood of four birds from each treatment was separately collected at fortnight interval through wing vein for haemoglobin estimation and serum from separately collected blood. The haemoglobin was determined by Sahli's haemometer. The serum total protein, albumin, globulin total lipids were estimated on Autoanalyser (Span Dignostics Ltd.) using standard kits. The globulin was calculated by subtracting albumin from total protein. The data obtained were analyzed as per Snedecor and Cochran (1994).

Table 2 Growth performance of broilers.

Parameters	T1	T2	T3	T4
Initial b.wt.(g)	46.10 ±1.23	48.05 ± 1.0	46.05± 0.94	46.75 ± 0.68
Final b.wt.** (g)	1892 ± 07.46	2133 ± 59.84	2548 ± 69.33	2602 ± 53.21
FCE**	1.88 ± 0.06	1.78 ± 0.16	1.76 ± 0.62	1.66 ± 0.13
Protein digestibility** (%)	55.45 ± 1.76	59.16 ±1.62	60.12 ± 1.27	60.52 ± 1.25

** - Significant at 1% level. (P<0.01)

Table 3 Haematobiochemical profile of birds on different levels of SRP.

Parameters	T1	T2	T3	T4
Heamoglobin**(g/dl)	11.88±0.28	11.97±0.45	11.78±0.25	12.93±0.32
Total serum protein**(mg/dl)	6.51±0.02	6.84±0.02	7.24±0.04	7.41±0.03
Albumin** (mg/dl)	4.16±0.04	3.93±0.04	4.08±0.04	4.18±0.03
Glucose (mg/dl)	157.18±2.51	160.43±3.60	161.25±1.53	157.81±2.00
Total lipids (mg/dl)	459.37±1.50	458.75±1.89	463.43±2.25	457.87±3.36
Globulin**(mg/dl)	2.35±0.04	2.91±0.02	3.16±0.05	3.22±0.04
Calcium (mg/dl)	10.86±0.17	10.97±0.07	11.00±0.16	11.01±0.13
Phosphorus (mg/dl)	5.50±0.04	5.49±0.01	5.19±0.02	5.25±0.04

** - Significant at 1% level. (P<0.01)

Results and Discussion

The chemical composition of treatment diets on inclusion of Shatavari root powder revealed that level of SRP influenced the numerical increase in CP, EE, CF and total ash content. At the same time ME Kcal / kg content also increased as the ME value for same calculated from chemical composition as 3943 Kcal/kg (Carpenter and Clegg, 1956).

The observations on growth performance of broilers (Table-2) revealed significant (P<0.01) improvement in live body weight of broilers compared to control and are in accordance with Sud (1982), Jadhav et al. (1999) who reported significant increase in live weight of broilers fed on diet supplemented with Liv-52, Livol and Ayucal. The feed conversion efficiency improved better as the level of SRP increased. Similar reports are noted by earlier and also by Ramappa et al. (1975). The higher inclusion level of SRP showed significantly (P<0.01) better protein digestibility resulting higher body weight in T4 treatment.

The haematobiochemical parameters studied fortnightly on feeding diet supplemented with different levels of SRP (Table 3.) indicated significant (P< 0.01) variation for Hb, total serum protein, albumin and globulin between treatments. As the level of SRP increased in diet, increasing trend was observed which might have supported immune system of birds. Similar observations were reported by Sud (1982), Joshi and Bhuvnesh Kumar (1987) and Jadhav et al. (1999) on Liv 52 and Ayucal supplementation. The serum glucose and total lipids were not affected by SRP in the present study. Where as, Sud (1982) and Jadhav et al.(1999) reported that Live 52 and Ayucal supplementa-

tion decreases serum cholesterol. The results indicated that supplementation of Shatavari root powder at 0.5, 1.0 and 1.5 per cent of broiler diet enhances growth performance and stimulate immune system of birds.

References

1. A.O.A.C. (1990): Official Method of Analysis. 15th ed, Washington D.C. 945.
2. Narahari, D.(1992):Performance promoting ability of Active Forte in broilers. *Poult. Advisor*:25(7):37-38.
3. Chopra, R.N., et.al.(1956): Glossary of Indian Medicinal Plants, CSIR, New Delhi, pp 28, 150, 176.
4. Chopra, R.N., et.al.(1958): Chopra's Indigenous Drugs of India.Pub.By Dhu and Sons. Pvt. Ltd. Calcutta-12. pp 496, 560.
5. Carpenter, K.J. and K.M. Clegg (1956): The metabolizable energy of poultry feeding stuffs in relation to chemical composition. *J. Sci. Food Agri*.7 (1):pp 45-51.
6. Dhande, V.U.; R.J. Kukade and B.S. Thakur (1991): Effect of Livol on performance of broilers. *Poult. Guide* 18(17):35-36.
7. Jadhav, N. V.,et.al.(1999): Effect of Ayucal supplementation on growth and performance of broiler. *Ind. J. Poult. Sci.* 34(3):327-331.
8. Joshi, S.C. and Bhuvnesh Kumar (1987): Effect of Liv-52 on growth and certain blood parameters in Japanese quails. *Ind. J. Poult. Sci.* 22 (4): 334- 338.
9. Ramappa, B.S., S. K. Goni and Devegowda (1975): Effect of feeding Liv-52 on the growth and feed consumption of broiler chicken. *Ind. Vet.J.*25: 115-120.
10. Snedecor G.W. and W.G.Cochran (1994): 8th ed. Oxford and IBH. Pub.Co. Calcutta.
11. Sud, S.C. (1982): Effect of Liv-52 on growth and certain blood parameters in poultry. *Ind. J. Animal Res.*16(2):89-92.
