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Effect of Superliv Feed Supplement on Growth Performance and Haemato-Biochemical Parameters of Broiler

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Abstract

Superliv an herbal product is a useful growth promoter for the broiler due to its effect as a lever tonic. An experiment was carried out on 60 day old broiler chicks which were divided randomly into four groups of 15 chicks in each group. The birds of group G_1 were taken as control while group G_2, G_3 and G_4 were received 0.1, 0.2 and 0.3 per cent of Superliv, respectively. Feeding trials were conducted for 5 weeks. The weekly body weight (gms) per broiler chicks up to fifth week of age is weighed is 1036.66 ±83.20, 1075.33±54.49, 1130.00 ±67.11 and 11.43.33 ± 46.54, respectively, The hemoglobin was 10.25±0.37, 10.60±0.37, 10.75±0.37 and 11.20±0.37 g/100ml, Haematocrit value was 28.90±0.75, 30.65±0.75, 30.90±0.75 and 31.80±0.37 per cent, PCV were 28.75±0.75, 29.60±0.75, 30.45±0.75 and 31.75±0.75%, TLC was 28.15±0.81, 27.51±0.75, 27.73 and 28.85±0.37thousand/cumm, Eosionophills was 2.05±0.01, 1.95±0.03, 185±0.01 and 2.15±0.05%, Neutrophils were 17.81±0.75, 18.20+0.37, 18.74±0.37 and 19.43 ± 0.37%, Lymphocyte was 67.70 ±1.13, 69.35± 0.75, 70.65±0.75 and 71.95 ± 0.37%, Monocyte was 4.85±0.15, 5.25±0.09, 5.55±0.11 and 5.90±0.70%, Basophils were 1.80±0.03, 1.90±0.03, 1.98±0.03 and 1.94±0.03%, R.B.C. was 2.70+0.07, 2.84+0.07, 3.12+0.04 and3.21+0.07 million/cumm, W.B.C was 25.24±0.37, 26.32±0.37, 28.48 ±0.75 and 30.62±0.75 thousand/cumm, Total serum protein was 6.45±0.17, 6.80±0.15, 7.00±0.15 and 7.40±0.15g/100ml, Cholesterol were 252.00±3.77, 245.00±3.77, 208.00±3.02 and 220.00±3.77 mg/100ml, Glucose was 245.65±3.77, 189±4.00, 240.00±3.77 and 210.38 ±3.92 mg/ 100, serum calcium was 22.95±0.75, 24.45±0.75, 24.40±1.19 and 27.10±0.79 mg/100, Serum phosphors was 8.50±0.18, 9.62±0.23, 9.75±0.28 and 10.78±0.37 mg/100 in group I, II, III and IV, respectively. The superliv feed supplement at 0.3 per cent level was beneficial in broiler chick ration. It increased the body weight and also helpful in increasing hemoglobin, total serum protein, W.B.C., Ca, P and in decreasing the cholesterol levels in blood.

Keywords: Body Weight, blood parameter, Broiler, herbal product, liver tonic, and superliv feed supplement

Poultry production in India has made a spectacular progress over the last 4-5 decades evolving from a backyard venture to a full-fledged commercial agro-business. The broiler farming is a fast developing enterprise. The feed cost is about 60-75 per cent of the total cost of poultry enterprises. The productivity potential of poultry in India has not been fully exploited due to deficit feed resources and unutilization of available improved technologies for getting high productivity from the poultry at economical rate. Hence, it is essential to further enhance the feeding value of available feed

resources. So, it is necessary to improve the efficiency of feed utilization and minimize the cost of feed per kilogram live weight gain. The trend in broiler production using certain feed additives to obtain maximum feed efficiency in shortage possible time. It will not only reduce the cost of production but also will in enhance the over all productivity of the birds. Various feed supplements are available in the market like shatabari, livol, Liv 52, and Heptomilk fort etc. Out of these, Superliv an herbal proprietary product is a useful growth promoter for the broiler due to its lever tonic properties. Therefore, this study has been undertaken to find out the effect of feeding superliv on growth performance and certain blood parameters which are related to liver function in the commercial broiler.

Materials and Methods

The experiment was conducted at the poultry farm of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur. The experiment was carried out on 60 chicks of day old broiler chicks in deep litter house system. Chicks were selected from the stock available at the poultry farm C. S. A. Univ. of Agri. & Tech., Kanpur U.P. These chicks were vaccinated against Ranikhet disease with RD (F1) vaccine. During the whole experimental period standard feeding watering and other managerial schedules were followed. The above selected chicks were weighted individually and divided randomly into four groups of 15 chicks in each group; G_2, G_3 and G_4 and group G_1 was served as control. Feeding trials were conducted for 5 week. Following feeding regimes were followed during experimental period. Group I Broiler feed (Control), Groups II Broiler feed +0.1%/day super Liv, Group III Broiler feed + 0.2%/day super Liv, Group IV Broiler feed + 0.3% /day super Liv. The body weight and certain blood parameters were analyzed by using standard procedure. The blood sample was collected under aseptic condition from the wing veins in the morning hour between 8.00 to 10.00 A.M. prior to providing fresh lots of feed and water. Ethylene diamine tera acetic acid disodium salt (E.D.T.A.) or heparin were used as anticoagulant. Heamatological and biochemical constituent's measurement (Haemoglobin, Haematocrit Value, PCV, TLC, DLC-Eosinophils, Neutrophils, Lymphocyte, Monocyte, Basophiles, RBC, WBC, Total Serum Protein, Cholesterol, Glucose, Serum Calcium and Serum Phosphorus). The experimental group's broiler chicks were kept one following ration. Similarly the amount of Superliv feed supplement is given through ration. The prepared ration and weighed amount of feed was given in morning and evening. First three week broiler was fed broiler starter and letter was fed broiler finisher ration (Table 1).

Table 1: Nutrient Composition of Broiler Chicks ration

Nutrient Constituents	Starter	Finisher
Moisture	10%	10%
Protein	22%	19%
Fat	5%	5%
Fiber	4%	4%
Sand/Silica Maximum	3%	3%
M.E. maximum	2900K. Cal	3000K. Cal

Statistical Analysis

The observation recorded were to statistical analysis by adopting by using completely randomized design analysis of variance according to the procedure described by Snedecor & Cochran (1967) Critical difference (C.D.) with in the treatment were calculated in order compare the treatment at 5 per cent level of significance only.

Results and Discussion

Weekly body weight of different groups

The growth rate of all groups of chicks was measured at weekly interval (Table 2). The mean body weights during different period in different group were 44.06 $\pm$ 1.86, 44.20 $\pm$ 2.07, 44.73 $\pm$ 2.21 and 44.93 $\pm$ 1.70 gm. In day old chicks, 65.13 $\pm$ 5.13, 66.26 $\pm$ 3.67, 70.40$\pm$ 5.57 and 71.6$\pm$ 3.89 gm in first week, 128.00$\pm$7.27, 133.33$\pm$6.72, 142.66$\pm$6.98 and 142.66$\pm$5.30gms In second week, 302.00$\pm$16.27, 321.33$\pm$24.74, 336.33$\pm$29.05 and 347.00$\pm$32.95 gms third weeks, 652.33$\pm$36.55,

676.66±43.33, 697.66±26.05 and 712.00±34.71 gm in fourth weeks, 1036.66+83.20, 1075.33+54.49, 1130.00+67.71 and 1143.33+46.54 gm in fifth weeks in G_1, G_2, G_3 and G_4 group, respectively. The similar results were also found by Kumar *et al.* (2003) and Devegowda and Arvind (1996).

Table 2: Growth rate (gms) in broilers under different categories

Week	G_1	G_2	G_3	G_4
0	44.06±1.86	44.20±2.07	44.73±2.21	44.93±1.70
1	65.13±5.13	66.26±3.67	70.40±5.57	71.06±3.89
2	128.00±7.27	133.33±6.72	141.66±6.98	142.66±5.30
3	302.00±16.27	321.33±24.74	336.33±29.05	347.00±32.95
4	652.33±36.55	676.66±43.22	697.66±26.05	712.00±34.71
5	1036.66±83.20	1075.33±54.49	1130.00±67.71	1143.33±46.54

Blood Parameters

The blood parameters of broilers under different categories have been presented in Table 3 and are discussed in detail as below:

Haemoglobin

The haemoglobin was 10.25±0.37, 10.60±0.37, 10.75±0.37 and 11.20±0.37 g/100ml in group I, II, III and IV, respectively. Analysis of variance revealed that significant difference in haemoglobin among the groups Joshi and Kumar (1987) and Verma *et al.* (1995).

Haematocrit Value

The Haematocrit value was 28.90±0.75, 30.65±0.75, 30.90±0.75 and 31.80±.37% in group G_1, G_2, G_3 and G_4, respectively. Higher Haematocrit value was observed in-group G_4, followed by group G_3, G_2 and G_1, respectively.

Packed cell volume (P.C.V)

The Packed cell volume was 28.10±0.75, 29.60±0.75, 30.45±0.75 and 31.75±0.37 per cent in group I, II, III and IV, respectively. Conducted that use of difference growth parameters, differ the PCV per cent but differences were highly significant. Similar observations were reported by Ibrahim et al. (1992) and Baidya *et al.* (1994).

Total Leucocyte count (T.L.C)

The total leucocyte count was 28.15±0.81, 27.51±0.75, 27.73±0.00, and 28.85±0.37 per cent in group I, II, III and IV, receptively. Lower total leucocyte count was observed in group II, as also found by Mandal *et al.* (1994) and Prasad *et al.* (1994).

Differential leucocyte count (D.L.C.)

A-Eosinophils

The Eosinophils count was 2.05±0.01, 1.95±0.03, 1.85±0.01, and 2.15±0.05 per cent in broilers of group I, II, III and IV, respectively. Higher Eosinophils was observed in group IV followed by group I, II and II, respectively.

B- Neutrophils

The Neutrophils was 17.81±0.75, 18.20±0.37, 18.75±0.37, and 19.43±0.37 per cent in group I, II, III and IV, respectively. Higher Neutrophils was observed in group IV followed by group III, II and I respectively.

C- Lymphocyte

The Lymphocyte was 67.70±1.13, 69.35±0.75, 70.65±0.75 and 71.95±0.37 per cent in group I, II, II and IV, respectively. Higher lymphocyte was observed in group IV followed by groups III, II and I, respectively.

D Monocyte

The Monocyte was 4.85±0.15, 5.25±0.09, 5.55±0.11 and 5.90±0.07 per cent in group I, II, III and IV, respectively. Lower Monocyte per cent was observed in group I followed by group II, III and IV, respectively.

E Basophiles

The basophils was 1.80±0.03, 1.90±0.03, 1.98±0.03 and 1.94±0.03 per cent in group I, II, III and IV, respectively. Lower Basophiles was observed in group III followed by group IV, II and I, respectively, by Mandal *et al.* (1994) Prasad *et al.* (1994)

Table 3: Blood parameters in broiler chicks fed on different levels of Superliv

S. No.	Particulars	Groups			
		I	II	III	IV
1.	Haemoglobin (g/100ml)	10.25±0.37	10.60±0.37	10.75±0.37	11.20±0.37
2.	Haematocrit Value %	28.90±0.75	30.65±0.75	30.90±0.75	31.80±0.37
3.	PCV %	28.10±0.75	29.60±0.75	30.45±0.75	31.75±0.37
4.	T.L.C. (Thousand/CUMM)	28.15±0.81	27.51±0.75	27.73±0.00	28.85±0.37
5.	**D.L.C.**				
A	Eosinophils (%)	2.05±0.01	1.95±0.03	1.85±0.01	2.15±0.05
B	Neutrophils (%)	17.81±0.75	18.20±0.37	18.74±0.37	19.43±0.37
C	Lymphocyte (%)	67.70±1.13	69.35±.75	70.65±0.75	71.95±0.37
D	Monocyte (%)	4.85±0.15	5.25±0.09	5.55±0.11	5.90±0.07
E	Basophils (%)	1.80±0.03	1.90±0.03	1.98±0.03	1.94±0.03
6.	R.B.C. (million/Cumm)	2.70±0.07	2.84±0.07	3.12±0.04	3.21±0.07
7.	W.B.C.(Thousand/Cumm)	25.24±.37	26.32±.37	28.48±.75	30.62±.75
8.	Total Serum Protein (g/100m)	6.45±0.17	6.80±0.15	7.00±0.15	7.40±0.15
9.	Cholesterol (Mg/100ml)	252±3.77	254±3.77	208±3.02	220±3.77
10.	Glucose(Mg/100 ml)	245.65±3.77	189.60±4	240.00±3.77	210.38±3.92
11.	Serum Calcium (Mg/100ml)	22.95±0.75	24.45±.75	24.40±1.19	27.10±0.79
12.	Serum Phosphorus(Mg/100ml)	8.50±.18	9.62±.23	9.75±.28	10.78±.37

Red blood corpuscles (R.B.C)

The value of red blood corpuscles was 2.70±0.07, 2.84±0.07, 3.12±0.04 and 3.21±0.07 (million/cumm) in group I, II, III and IV, respectively. Higher red blood corpuscles were observed in group IV followed by group III, II, and I, respectively. The similar results were reported by Joshi and Kumar (1987), Verma *et al*. (1995), Ibrahim *et al.* (1992), Lal *et al.* (1996) and Verma and Lal (1997).

White Blood corpuscles (W.B.C.)

The white blood corpuscles was 25.24±0.37, 26.32±0.37, 28.48±0.75 and 30.62±0.75 (thousand/cumm) in group I, II, II and IV, respectively. Lower white blood corpuscles (thousand/cumm) was observed in group I, followed by group II, III and IV.

Total serum protein

The value of total serum protein was 6.45±0.17, 6.80±0.15, 7.00±0.15 and 7.40±0.15 g/100 ml in group I, II, III and IV, respectively, as also reported by Joshi and Kumar (1987) and Verma *et al.* (1995).

Cholesterol

The value of cholesterol was 252.00±3.77, 245.00±3.77, 208.00±3.02 and 220.00±3.77 mg/100ml in group I, II, III and IV, respectively. Higher cholesterol was observed in group I followed by group II, IV and III,

respectively, as also reported by Joshi and Kumar (1987), Mohan and Kadir Vel (1991) Lal *et al.* (1996).

Glucose

The mean value of glucose was 245.65±3.77, 189.60±4.00, 240.00±3.77 and 210.38±3.92 mg/100 ml in group I, II, III and IV, respectively. Lower glucose was observed in group II followed by group IV, III and I, respectively, as reported by Verma and Lal (1997).

Serum calcium

The mean value of serum calcium was 22.95±0.75, 24.45±0.75, 24.40±1.19 and 27.10±0.79 mg/100 in group I, II III and IV, respectively. Higher serum calcium was observed in-group IV followed by group II, III and I, respectively.

Serum Phosphorus

The mean value of serum phosphorus was 8.50±0.18, 9.62±0.23, 9.75±0.28 and 10.78±0.37 mg/100 ml blood in-group I, II, III and IV, respectively. Higher serum Protein was observed in-group IV followed by birds III, II and I, respectively.

The effect of Superliv on parameters of blood under different categories is also depicted in Figure 1.

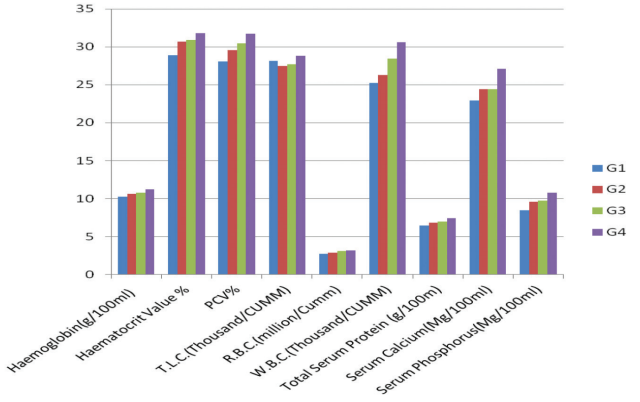

Fig. 1: Blood parameters in broiler chicks fed on different levels of Superliv

Conclusion

It is concluded that the inclusion of superliv feed supplement at 0.3 per cent level is beneficial for preparing ration of broilers. It helps in increasing the growth rate, hemoglobin, total serum protein, W.B.C., Calcium, Phosphorus and in decreasing the cholesterol levels in blood.

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