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EFFECT OF HERBAL ANTIOXIDANT SUPPLEMENTATION ON THE PERFORMANCE OF BROILER CHICKS

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Abstract: *The present experiment was conducted on study the effect of herbal antioxidant supplementation (Aonla, Tulsi and Satawari) on the performance of broiler chicks. The experiment was conducted at university poultry farm. 100, day old chicks were selected from university hatchery and divided into 4 groups G_1, G_2, G_3 and G_4 each group was 25 chicks. The chicks of group first were served as control group, while G_2, G3 and G4 were control received herbal antioxidant supplementation and combination of herbal antioxidant supplementation (Aonla, Tulsi and Satawari), respectively. The effect of the treatment on the performance of broiler chicks was studied up to 6 week of age. Following parameters were observed and the data were statistically' analyzed. From present investigation, it was concluded that Application of herbal antioxidant supplementation (Aonla, Tulsi & Satawari) in the diet of broiler chicks improved the growth rate but did not show any effect on consumption. It was also concluded that the herbal antioxidant supplementation benefit for day old chicks i.e. Aonla, Tulsi and Satawari. Satawari (1%) were found is best as compared to Aonla and Tulsi.*

Keywords: *Aonla, Broiler, Feed Consumption, Feed Conversion Efficiency, Growth Rate Satawari and Tulsi*

Introduction: The poultry farming in India occupies an important position due to its enormous potential to bring about rapid economic growth, particularly benefiting the weaker section due its low investment requirement and short gestation period. Now it has been transformed into a strong agrobased commercial activity having tremendous employability and income generation potential contributing nearly 0.7 % of the national GDP and about 9 % of livestock GDP. India is the 3rd largest egg producer and fifth position in broiler production in the world. Our poultry enterprises contribute approximately Rs. 22,000 cores of the GNP and support the livelihood of 2.0 million people. Poultry sector is dubbed as the one having highest employability per unit of investment. In India the average per capita availability is still nearly 52 eggs and 2.3 kg of poultry meat against in recommended level of 180 eggs and 11 kg meat per annum.

Poultry feed accounts for about 60-70% of the total cost of production, which is one of the most serious challenges for the industry. Therefore, improving feed conversion efficiency (FCR) would be crucial to profitability apart from the feed cast itself. The porosity of feed and fodder is one of the major constraints in livestock and poultry production although the crop residues and agricultural by products are utilizing in livestock and poultry feeds, a shortage of feed and fodders continues to exist. Herbs are staging a comeback and herbal renaissance is happening all over the globe. The herbal products today symbolize safety in contrast to the synthetics that are regarded as unsafe to humans and environment. The drugs can be used the food supplements. A dietary supplement is a product taken by month that contains a dietary ingredient, intended to supplement or enhance the diet. The three formulations chosen for nutritive value analysis were single ingredient capsules of Aonla, Tulsi and Satawari. The Aonla consists of the fresh or dried fruit of Emblica officinalis (aonla) is rich in farnins Gallic acid, allagic acid and glucose, pectin and vitamin C. Aonla is a

very good liver tonic and gentle purgative. Vitamin C, thus showing anti- scorbutic activity and Aonla has a very high nutritive value.

Materials and Methods

The experiment was carried out at the poultry farm of Chandra Shekhar Azad University of Agriculture and Technology, Kanpur during the year 2013 for 6 weeks (42 Days) period. One hundred chicks were weighed individually and divided randomly into four groups. 25 chicks in each group G_1 G_2, G_3 and G_4,. G_1 group was served as control group, while G_2, G_3 and G_4, respectively, were used as treatment group and provided herbal antioxidant feed supplement 1% Aonla fruit powder, 1% Tulsi leaf powder and 1% Satawari root powder per day upto 6 weeks, respectively. The data recorded were exp1ain to statistical analysis by base on appropriate model analysis of variance according to the procedure describe [1] critical difference (CD)with in the treatment were calculated in order to compare the treatment at l% and 5% level of significance only.

Results and Discussion

Weekly Body Weight of Different Groups: Growth rate of all groups of chicks were measured at weekly interval (table 1). The mean body weights during different period in different groups were 38.760, 38.600, 38.640 and 38.800 gm/chick in day old chicks, 75.600, 76.920, 78.360 and 80.240 gm/chick in first week, 207.280, 207.520, 209.760 and 222.640 gm/chick in second week, 222.640, 417.040, 421.360 and 480.000 gm/chick in third week, 722.920, 724.240, 724.920 and 836.000 gm/chick in fourth week, 930.880, 1020.200, 1034.040 and 1035.240 gm/chick in fifth week, 1137.400, 1223.920, 1275.96 and 1293.320 gm/chick in sixth week in G_1, G_2, G_3 and G_4, respectively. Statistically, the higher significant difference were observed by different groups ($P<0.05$). The higher body weight was observed by G_4 followed by G_3 G_2 G_1 respectively. Studied on herbal growth promoters it showed the result found is similar [2]. Studied the role of herbal sources of improving growth and performance was observed in the treated groups as compared to untreated groups [3].

Table 1: Body weight gm in broiler chicks of different group at the different week of age

Week	G_1	G_2	G_3	G_4
0	38.760	38.600	38.640	38.800
1	75.600	76.920	78.360	80.240
2	207.280	207.520	209.760	222.640
3	222.640	417.040	421.360	480.000
4	722.920	724.240	724.920	836.000
5	930.880	1020.200	1034.040	1035.240
6	1137.400	1223.920	1275.960	1293.320

Weekly Body Weight Gain of Different Groups: Body weight gain of all groups of chicks was measured at weekly interval. The mean value of weight gain was 1098.640, 1185.320, 1240.32 and 1254.480 gm/chick in G_1, G_2, G_3 and G_4, respectively. It showed significant difference among different groups ($p<0.05$). The weight gain was highest in G_4 followed by G_3, G_2 and G_1. Where G_3 was significantly higher from G_2 and G_1 and Where G_2 was significantly higher from G_1. Observed that the body weight gain were significantly ($P<0.05$) different in treated [4]**.** The effect of herbal growth promoter on broiler performance was better in treatment than the control group [5]. The live weight gain, dressing percentage and profitability were significantly higher in treatment group when compared with control group.

Feed Consumption: The mean value for feed consumption during different periods in different groups were 244.840, 243.920, 244.080 and 244.520 gm/chick in first week, 314.800, 314.640, 314.880 and 314.880 gm/chick in second week, 419.880, 419.520, 419.800 and 419.640 gm/chick in third week, 524.800, 523.320, 523.720 and 523.560 gm/chick in fourth week, 665.360, 666.080, 666.320 and 665.840 gm/chick in fifth week, and 840.080, 839.840, 839.200 and 840.000 gm/chick in sixth week in G_1, G_2, G_3 and G_4, respectively (table 2). The total feed consumption during this experiment was found slightly differed among all groups. However, in groups G_4 slightly higher was noticed followed by group G_3, G_2, and G_1, respectively The non-significant differences were found in feed consumption among different groups ($P>0.05$). Found was similar results, it was shown that 42 days body weight of broilers was FCR, Mortality were also lower in the herbal group [6,7]. Results showed that, significantly improved feed efficiency of the broilers [8]. Result showed that feed conversion efficiency (FCE) was insignificantly different among the group [9].

Table 2: **Feed consumption in per broiler chicks of different group and age**

Week	G_1(gms)	G_2(gms)	G_3(gms)	G_4(gms)
1	243.920	244.080	244.520	244.840
2	314.640	314.880	314.880	314.800
3	419.520	419.800	419.640	419.880
4	523.320	523.720	523.560	524.800
5	666.080	666.320	665.840	665.360
6	839.840	839.200	840.000	840.080
Total feed consumption	3007.32	3008.00	3008.44	3009.76

Feed Conversion Ratio: The mean values of FCR were 2.744, 2.532, 2.416 and 2.296 gm/chick in G_1, G_2, G_3 and G_4, respectively. The FCR was highest in G_1 followed by G_4, G_3 and G_1, where as G_4 was significantly higher from G_2 and G_3. In the present study the better performance observed in FCR in treatments groups as compared to control group. Observed that addition of Livlif in diet of broiler has beneficial effect to some extent on body weight gain, feed consumption and feed conversion efficiency [10]. Observed the effect of dietary supplementation of herbal feed on performance of broiler chick [11].

Economics of Broiler Production: The total expenditure includes the cost of day old broiler chick electricity charges, labour charges and the total feed required to produce live weight gain of the broiler. The cost of different experimental diets (Starter and Finisher) as shown in table 3 has been calculated on the basis of the current prices of the feed ingredients. The data revealed the average/bird was 20.50, 31.50, 30.00 and 36.50 (Rs.) in G_1, G_2, G_3 and G_4, respectively. Thus, it can be concluded that the Satawari feed supplement at 1% per cent level or group G_4 was beneficiary in broiler chick ration. It is clearly showed that profit and cost benefit ratio increase with the application of herbal growth promoter in diet.

Table 3: Benefit cost ratio in broiler chicks

Particulars	(Control) G_1	(Aonla %) G_2	(Tulsi %) G_3	(Satawari %) G_4
Cost/Bird (Rs.)	20.00	20.00	20.00	20.00
Feed cost per bird (Rs.)	63.00	64.00	64.00	64.00
Herbal lever (Rs.)	-	6.00	15.00	17.00
Labour cost/bird (Rs.)	6.00	6.00	6.00	6.00
Miscellaneous (Rs.)	2.00	2.00	2.00	2.00
Total Cost of Productions (Rs.)	91.00	98.00	107.00	109.00
Sale/bird (Rs.)	110.00	128.00	136.00	144.00
Sale of other (Rs.)	1.50	1.50	1.50	1.50
Net Income (Rs.)	111.50	129.50	137.50	145.50
Net Profit/bird (Rs.)	20.50	31.50	30.00	36.50
Benefit cost ratio	1.22	1.32	1.28	1.33

Conclusion: From present investigation, it was concluded that the Application of herbal antioxidant supplementation (Aonla, Tulsi & Satawari) in the diet of broiler chicks improved the growth rate but did not show any effect of feed consumption. It was conducted that the herbal antioxidant supplementation benefit for day old chicks. i e. Aonla, Tulsi and Satawari and these Satawari (1%) were found is best as compared to Aonla and Tulsi.

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