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Effect of different feeding levels of *Emblica officinalis* (Amla) on performance of broilers

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ABSTRACT : The trial was conducted for a period of six weeks day old broiler chicks, uniformly distributed into three groups of 20 chicks in each as T_1, T_2 and T_3 groups. The chicks were fed with standard starter mash which contained crude protein 22.01 per cent and metabolizable energy 2748.84 Kcal / kg (calculated value) up to three weeks of age. For next 3 weeks *i.e.* from 4 to 6 weeks of age with finisher mash which contained crude protein 19.11 per cent and metabolizable energy 2834.01 Kcal / kg (calculated value). Group T_1 received standard broiler diet. Group T_2 and T_3 received standard broiler diet supplemented with Amla powder. The experimental birds were reared on deep litter system and rice husk was used as litter material. The supplementation of Amla powder in briler recorded significant improvement in all studied growth parameters *i.e.* live body weights, weekly gain in body weights and feed conversion ratio was observed in all the supplemented groups over the control group. However, feed consumption in control group was significantly higher than supplemented group. The economic returns of supplemented groups were slightly lower than the unsupplemented group. The net profit per bird was slight lower in the supplemented group followed by unsupplemented group (T_1).

KEY WORDS : Broiler chicks, Amla powder, Performance

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INTRODUCTION

Indian poultry industry has emerged, as an agro-based industry. Broiler production is the dynamic as well as the most rapidly expanding segment of the poultry industry in the country. Poultry today not only acts as income stabilizer but also provides regular and timely income as compared to crop and other livestock farming. The annual broiler production in the country has increased over the years. The broiler industry is growing at the rate of 12-15 per cent per annum during last few years. The popularity of poultry meat is on the rise during the last two decades. It is of the total meat consumed and is the most popular meat from any single livestock species. Indian poultry industry ranks 2nd in egg production and 6th in chicken meat production (Anonymous, 2011).

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The economics of poultry industry depends upon the feed. Over a period of time, extensive efforts have been taken to lower down the cost of production by lowering the expenses on feed. Feed additives are one of the important tools used for improving feed conversion ratio, growth rate and disease resistance. The main objective of the producer was to increase feed efficiency, growth rate and disease resistance. Recent trend in broiler production is to offer feed containing the feed additives to improve the feed efficiency and obtain maximum returns in shortest possible time. Various types of feed additives such as antibiotics, enzymes, hormones, prebiotics, probiotics, herbal products etc. are used as growth stimulants in poultry production.

Lots of herbal preparations help the birds to fight stress arising due to various reasons. Adaptogenic herbs like Ashwagandha, Tulsi, Amla, and Ginseng etc. are being used as anti-stress factors for long years in human and animal medicines with proven results (Ranade and Desai, 2005).

In recent years some herbal preparations are widely used as feed additives for enhancing growth, reducing feed cost by improving feed efficiency and for building better immunity. Amla fruit powder as feed additive has been reported to possess

antistress, adaptogenic, immunogenic and growth-stimulating properties resulting in better performance of broiler (Sapcota *et al.*, 2005, Wadhwa *et al.*, 2007).

More benefits can get on feeding Amla fruit powder as feed supplement in broiler as Amla possesses antistress and antioxidant property. Amla promotes growth, stimulate the immune system and improves feed conversion efficiency

MATERIALS AND METHODS

The trial was conducted for a period of six weeks day old broiler chicks, uniformly distributed into three groups of 20 chicks in each T_1, T_2 and T_3 groups. The chicks were fed with standard starter mash which contained crude protein 22.01 per cent and metabo-lizable energy 2748.84 Kcal/kg (calculated value) up to three weeks of age. For next 3 weeks *i.e.* from 4 to 6 weeks of age with finisher mash which contained crude protein 19.11 per cent and metabolizable energy 2834.01 Kcal/kg (calculated value). Group T_1 received standard broiler diet. Group T_2 and T_3 received standard broiler diet supplemented with Amla @ 15 kg / t and 20 kg / t of feed, respectively. The experimental birds were reared on deep litter system and rice husk was used as litter material.

All the broiler chicks were immunized against Marek's disease in hatchery; chicks were also vaccinated against Ranikhet disease (Newcastle disease) and Gumboro disease (infectious Bursal disease) on 7th and 20th day of age, respectively. During first five days of brooding period, Terramycin – WS powder was added in drinking water @ 2.5 g/ 4.5 litres as preventive medication against coliform bacterial infections. "Vimeral" (Vit-A, D3, E, B12) was also added in drinking water @ 4 ml/ 4.5 litre during first five days. Body weight of the individual experimental chicks were recorded in gram on electronic balance at day old and thereafter at weekly interval till six weeks of age.

Ad libitum feed was offered daily and record was maintained. At the end of every week, left over feed was measured to calculate feed consumed during the week.

RESULTS AND DISCUSSION

The results are summarized below according to objectives of the study:

Growth performance:

The average means of weekly live body weight, weekly gain in body weight, weekly feed consumption and weekly feed conversion ratio are presented in Table 1. Supplementation of Amla powdwer (T_2) and (T_3) resulted in significant ($P<0.05$) increase in average means of body weight and weekly gain in body weight than control (T_1). The beneficial effect of Amla powder recorded in the present study in respect of growth performance is in agreement with Ghavate *et al.* (2009). Feed conversion ratio for both the supplemented groups was significantly improved than the control group. The best FCR was recorded in group T_3 followed by group T_2 and T_1.

Table 1 : Growth parameters

Sr. No.	Particulars	T_1	T_2	T_3
1.	Weekly live body weight	356.8	363.3	393.3
2.	Weekly gain in body weight	356.71	369.88	375.71
3.	Weekly feed consumption	672.76	671.96	684.68
4.	Feed conversion	1.695	1.676	1.679

Significant at 5% level

Table 2 : Economics of broiler production

Sr. No.	Particulars	T_1	T_2	T_3
1.	Cost of day old chick (Rs.)	25.00	25.00	25.00
2.	Cost of feed (Rs./kg)	18.50	18.50	18.50
3.	Cost of Amla (Rs.)	0	1.2	1.6
4.	Total cost of feed (Rs./kg)	18.50	19.70	20.10
5.	Average total feed consumed per bird (g)	3930.53	4032.08	4108.44
6.	Cost of feed consumed per bird (Rs.)	72.70	79..43	82.57
7.	Average body weight at the end of 6^{th} week (g)	2187.53	2266.80	2302.37
8.	Feed consumption per kg live weight gain (g)	1796.78	1778.75	1784.44
9.	Cost of feed per kg live weight gain (Rs.)	33.24	35.04	35.87
10.	Cost of medicine, vaccines, litter material etc. per bird (Rs.)	5.00	5.00	5.00
11.	Total cost of production (Rs.) (1+6+10)	102.70	109.43	112.57
12.	Average price realized @ Rs. 65 per kg live weight (Rs.)	142.22	147.35	149.63
13.	Net profit per bird (Rs.) (12-11)	39.52	37.92	37.06

Economics:

The results of economics of broiler production are given in Table 2. The present study revealed that net cost of production per bird was maximum for T_3 (Rs.112.57) followed by T_2 (Rs.109.43),and T_1 (Rs.102.70). The net profit per bird for groups T_1, T_2 and T_3 was Rs. 39.52, 37.52 and 37.06, respectively. Both the supplemented groups have slight lower net profit than control due to the increase the cost of supplements addition in the rations of broilers.

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