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## EFFECT OF SUPPLEMENTATION OF SHATAVARI ROOT POWDER ON BROILER CHARACTERISTICS AND ECONOMICS OF VENCobb-400 CHICKS

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## ABSTRACT

The present investigation entitled "Effect of Supplementation of Shatavari Root Powder (SRP) on Broiler Characteristics and Economics of Vencobb-400 Chicks" was carried out to assess the body weight, body weight gain, feed consumption, feed efficiency, dressing percentage and economics of the treatments were evaluated. The 150 day old Vencobb-400 broiler chicks, divided in to three groups ( $T_1$ ,  $T_2$  and  $T_3$ ) having 50 birds in each groups. The  $T_1$  birds were fed on a basal ration (Control). The  $T_2$  birds were given 0.5% SRP and  $T_3$  birds were given 1% SRP along with the basal ration. The chicks in  $T_3$  group (1% SRP) attained higher body weight at 6<sup>th</sup> week (2320.74 g), less feed intake (3794.77 g), better cumulative feed efficiency (1.70), higher dressing percentage (68.48 %) and higher economic profit (15.33 Rs.). The overall performance and economical benefits were better at 1% level of inclusion of these herbs compared to 0.5% level and control.

## 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 tuberous roots of Shatavari (*Asparagus racemosus* wild.) are well known for its galactagogue and anabolic activity and it appears in many Ayurvedic preparations as growth promoters and immuno-stimulant.

The beneficial effects of Shatavari may be attributed to its concentrations of saponins (active principle), known as *Shatavarins* and having properties like nutritive tonic, anti-stress (Rege *et al.*, 1989; Kamat *et al.*, 2000). In a recent study by Sharma *et al.* (1986), shatavari have been shown to possess anabolic properties viz. growth promotion, laxative, antacid, appetizer, beneficial for eye sight. Indigenous plant like *Asparagus racemosus* is playing a role of antiseptic, anticancer, astringent, cooling (Dinabandhu Moharana, 2008), immunomodulation (Seena and Kuttan, 1993). The antioxidant property of shatavari can be used therapeutically to capture free radicals generated in the body as a result of stress and ultimately leading to severe damage to various cells in the body.

In view of above beneficial effects of feeding SRP (*Asparagus racemosus*) the present investigation entitled effect of supplementation of Shatavari Root powder (SRP) on broiler characteristics and economic of Vencobb-400 chicks was planned with the objectives of study the growth performance, find out the suitable level of herbal supplement in broiler diet and study the economics of broiler production.

## MATERIALS AND METHODS

The trial was conducted on 150 day old, VenCobb-400 broiler chicks, at the Post Graduate Institute of veterinary and animal sciences, poultry farm Akola. Commercial straight run broiler chicks of Vencobb-400 strain were obtained from Khadkeshwar Hatcheries Pvt. Limited, Aurangabad, Maharashtra. The SRP was procured from local market of Akola as feed additives for the conducting feeding trial on broilers. The chicks were divided into three groups ( $T_1$ ,  $T_2$  and  $T_3$ ) having 50 birds in each group. The birds were kept under deep litter system. The  $T_1$  birds were fed on a basal ration (Control). The  $T_2$  birds were given 0.5% SRP and  $T_3$  birds were given 1% SRP along with the basal ration. On arrival, chicks were weighed and distributed randomly in to three treatment groups viz,  $T_1$ ,  $T_2$  and  $T_3$  with 50 chicks in each group, on equal weight basis. Body weight and feed consumption were recorded at weekly interval up to 6<sup>th</sup> weeks of age. Feed conversion efficiency was estimated as amount (kg) of feed consumed during the week divided by gain in body weight during the week. Towards the end of trial three birds from each group were randomly selected and slaughtered by "Modified Kosher" method for the dressing percentage (Korczak and Grabowicz, 2003). The economics of broiler production was worked out by considering the total cost of production which included the feed cost, chicks, labour, medicines, vaccines and the overhead costs. The data were analysed by standard statistical techniques (Snedecor and

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Cochran, 1989).

## RESULTS AND DISCUSSION

### Cumulative body weight

The initial body weights of broilers were nearly the same in all dietary treatments indicating that the treatments groups were homogenous in nature. The significant difference in weekly body weight was found from third week onward. The trend of significantly better growth was recorded in T<sub>3</sub> (2320.74) group during fourth to sixth week. This indicates beneficial effect of feeding SRP (1%) at higher level than lower one (0.5%). The chicks in T<sub>3</sub> group (1% SRP) attained higher body weight at 6<sup>th</sup> week (2320.74 g). The cumulative body weight obtained in this study is in agreement with the reports of Rekhate *et al.* (2004), Pedulwar *et al.* (2007), Bhardwaj *et al.* (2008), Narayanswami *et al.* (2004) and Srivastava *et al.* (2013) regarding the weekly body weight in broilers.

### Cumulative body weight gain

The initial body weight gain of broilers for all treatment groups were almost similar showing statistically non-significant difference up to third week of age. The average weekly body weight gains at sixth weeks of age were 467.53, 528.79 and 513.88 g in T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> treatments groups, respectively. The cumulative body weight gain obtained in this study is in agreement with the reports of Rekhate *et al.* (2004), Bhardwaj *et al.* (2008), Pedulwar *et al.* (2007) and Srivastava *et al.* (2013) regarding the weekly body weight gain in broilers.

### Cumulative feed consumption

The cumulative feed consumption at sixth weeks of age were 3965.30, 3877.91 and 3794.77 gms, respectively in T<sub>1</sub>, T<sub>2</sub>

and T<sub>3</sub> treatments groups. The cumulative feed consumption of broilers for the treatment groups was lesser as compared to control. The cumulative weekly feed consumption for broiler was found to be significant within treatment groups. The feed intake of all the chicks receiving SRP was lower than of control and there was a linear decrease with the level of addition, Kumari *et al.* (2012).

### Cumulative feed conversion efficiency

The improvement in feed efficiency was attributed the combined effect of significant less feed consumption and more gain in weight SRP (T<sub>2</sub> and T<sub>3</sub>) groups and less feed consumption in SRP (1%). The better feed efficiency was observed in SRP (1%) as compared to control group. The better FCR was recorded in treatment T<sub>3</sub> (1.70). The feed conservation efficiency improved as level of SRP increased similar observations have noted by Rekhate *et al.* (2010). The feed intake of all the chicks receiving SRP was lower than of control and there was a linear decrease with level of addition Kumari *et al.* (2012). Improved feed utilization efficiency due to shatavari root powder supplementation have been reported Rekhate *et al.* (2004), Bhardwaj *et al.* (2008), Srivastava *et al.* (2012) and Pedulwar *et al.* (2007) in the literature.

### Dressing percentage

The average dressing percentage among the different treatment groups varied between 65.61 to 68.48 per cent. The differences among all the treatment groups were found to be non-significant. Numerically higher dressing percentage was recorded in treatment T<sub>3</sub> (68.48).

### Economics of Broiler Production

The economics of broiler production was estimated by, considering the total amount of feed consumed by broilers

**Table 1: Broiler traits in different groups of chicks up to 6th weeks of age**

Treatments	6 <sup>th</sup> week weight (g/bird)	Body weight gain (g/bird)	Feed intake (g/bird)	Feed efficiency	Dressing percentage
T1: Control	2178.01	467.53	3965.30	1.85	65.61
T2: 0.5 % SRP	2251.37	528.79	3877.91	1.75	66.31
T3: 1% SRP	2320.74	513.88	3794.77	1.70	68.48
'F' test	Sig	Sig	Sig	Sig	NS
SE (m) ±	30.09	6.71	6.71	9.80	2.03
CD	89.38	18.62	18.62	0.02	-

NS – Non Significant

**Table 2: Economics of Broiler Production**

Sr. No.	Particulars	T1: Control	T2: 0.5 % SRP	T3: 1% SRP
1.	Cost of day old chick (Rs.)	23	23	23
2.	Cost of feed (Rs/kg)	30.40	30.40	30.40
3.	Cost of SRP (Rs)	0	0.50	1.0
4.	Total cost of feed (Rs/kg)	30.40	30.90	31.60
5.	Average total feed consumed per bird (Kg)	3.965	3.877	3.794
6.	Cost of feed consumed per bird (Rs.)	120.53	119.79	119.13
7.	Average body weight at the end of 6 <sup>th</sup> week (Kg)	2.178	2.251	2.320
8.	Feed consumption per kg live weight gain (Kg)	1.820	1.722	1.635
9.	Cost of feed per kg live weight gain (Rs.)	55.34	53.22	51.34
10.	Rearing Cost per bird (Rs.)	4.94	4.94	4.94
11.	Total cost of production (Rs.) (1 + 6 + 10)	148.47	147.73	147.07
12.	Average price realized @ Rs. 75 per kg live weight (Rs.)	152.46	157.57	162.4
13.	Net profit per bird (Rs.) (12-11)	3.99	9.84	15.33

under T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> treatments groups and other inputs such as cost of day old chicks SRP as feed additive, medicine, vaccines, litter material. The data on economics is presented in Table 2.

It may be seen from values in Table 2 that the cost of feed in T<sub>2</sub> and T<sub>3</sub> increased in accordance with the level of addition of SRP. Moreover, broilers in treatment groups T<sub>3</sub> gained highest body weight (2320.74 gms) with feed cost (Rs. 142.65) and control group gained weight (2178.08 gms) with feed cost (Rs. 120.53) The net profit per bird was highest in T<sub>3</sub> (Rs. 15.33) followed by T<sub>2</sub> (9.84) and lower in T<sub>1</sub> (3.99) as indicated in Table 2. Broiler in T<sub>2</sub> and T<sub>3</sub> group consumed lower feed per Kg live weight as compared to control T<sub>1</sub> group which gained lower average body weight at the end of six week. This indicated that broilers in group T<sub>3</sub> (SRP) showed better feed utilization as compared to the broilers in control group.

The economical benefits due to supplementation of SRP have also been reported by Shisodiya *et al.* (2008) and Karadkar *et al.* (2009). Pandey *et al.* (2013) reported higher net profit per bird in broiler supplemented with herbal feed additives in diet.

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