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Effect of Herbal Liver Stimulants on Growth and Performance of Broiler Chicks

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ABSTRACT

The study was carried out on effect of herbal liver stimulants on growth and performance of broiler chicks. Hundred, one day old commercial broiler chicks were randomly selected. These were divided into four groups (G1, G2, G3, and G4) of 25 each. Treatment groups G2, G3, and G4 were provided 3ml, 6ml and 9 ml herbal liquid liver stimulant in drinking water per 25 chicks per day for 0-3 weeks on starter ration and 6ml, 9ml and 12ml herbal liquid liver stimulant per 25 chicks per day on finisher ration respectively, In the control group G1 no addition feed supplement given for 0-3 and 3-5 weeks. It was observed that growth rate, feed conversion efficiency, livability and dressing percentage were significantly higher in herbal liver stimulant feed supplemented groups compared to control. This indicates incorporation of herbal liver stimulant feed supplement in broiler ration level @ 9 ml/100 broiler chicks/day upto 0-3 weeks of age and @12 ml/100 broiler chicks/day 3-5 weeks of age is profitable in broiler production.

Keywords: Body weight gain, Broilers, Feed efficiency, Growth performance, Herbal liver stimulants, Herbs

INTRODUCTION

In India broiler production is 3.8 million tons fourth largest in the world after US, Brazil and China. The global poultry sector has been primarily characterized by a continuous growth in demand over the years. It is expected that the broiler enterprises will have an annual growth of 20 per cent and layers production about 10 per cent. Poultry species are efficient converters of feed into animal protein of high biological value as compared to other livestock species. The continuous increasing demand in the country creates a great scope for poultry enterprises like broiler and layer farming. Constraint lies with the feed resources as it has been observed that feed cost alone constitute about 60-75 per cent of the total cost of the poultry production. Any effort to improve feed efficiency through the knowledge of poultry nutrition and feeding will go a long way to improve the profit margins of the poultry farmers. It is essential to further enhance the feeding value of available feed resources. Hence, it is necessary to improve the efficiency of feed utilization and minimize the cost of feed per kilogram live weight gain. Studies of several researches had indicated that the feed supplement, containing important vitamins, minerals and other feed constituent might be useful. These supplements improve performance by enhancing growth rate, feed efficiency and confer immunity against various, disease and disorders. It will not only reduce the cost of production but also will in enhance the overall productivity of the birds. Seasonal changes manifest a risk of disease and liver is the major organ affected. Thousands of herbal and traditional compounds are being screened worldwide

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to validate their use and several of them find their application in poultry production as well (Gujral *et al.,* 2002; Jayathritha and Mishra, 2004; Khan *et al.,* 2012). Inclusions of herbal growth promoters in broilers ration have been shown to give beneficial effects. The individual herb constituents of Superliv conc. Namely *Andrographis paniculata, Eclipta alba, Achyranthus aspera, Solanum nigrum, Tinospora cordifolia* and *Phyllanthus emblica* are scientifically well proven for its hepatoprotective, anti-hepatotoxic, immunomodulatory, antioxidant, performance enhancing and growth promoting activity. The inherent utility and practical applications of indigenous medicinal herbs/plant extracts (garlic, Cinnamon, tulsi, ginger, turmeric, lemon, neem, yucca, thyme, rosemary, etc.) are being explored for improving poultry health as well as production with fruitful results (Gujral *et al.,* 2002; Singh *et al.,* 2009; Pal *et al.,* 2013) In this view the present investigation was undertaken to study the effects of herbal liver stimulant on overall growth and performance, feed efficiency, in commercial broilers.

METHODOLOGY

The investigation was conducted on 100 randomly selected day old commercial Vencobb broiler chicks. These are divided into four groups (G1, G2, G3, and G4) of 25 each. Treatment groups G2, G3, and G4 were provided 3 ml, 6 ml and 9 ml herbal liquid liver stimulant in drinking water per 25 chicks per day for 0-3 weeks on starter ration and 6 ml, 9 ml and 12 ml herbal liquid liver stimulant per 25 chicks per day on finisher ration respectively, In the control group G1 no addition of any amount of feed supplement for 0-3 and 3-5 weeks. Chicks were reared on deep litter system. Balanced computed ration were given to birds which was purchased from reputed company. Feed and water was given ad lib. Upto third week age broilers were offered broiler starter feed and finisher feed was given later. Vaccination against *Ranikhet* disease and Infectious Bursal disease as carried out as per the schedule. Livability was calculated depending on death of birds. Birds were maintained under standard management practices. Initial body weight, body weights on second, third, fourth and fifth week and feed consumption was also recorded and The effect of herbal liver stimulant feed supplement on the mortality rate, growth rate, feed consumption, feed conversion efficiency and dressing percentage of broiler chicks were studies for fifth week cumulative feed efficiency was calculated. One bird from each replication was slaughtered and dressing yield was recorded. The data obtained from this investigation were statistically analyzed by comparing treatment means by using completely randomized design according to Snedecor and Cochran (1989)**.** An attempt was made at the end of the trail to calculate the net returns from herbal growth promoter supplementation. The composition of 500 ml herbal liver stimulant feed supplement was – Kutaki (*Picrorhizo kurroa*) 13.5 mg, Bhumyamalaki (*Phyllanthus niruri*) 375.0 mg, Rohitak (*Tecomello*375.0 mg, Punarnava (*Boerhaavia diffusa*) 375.0 mg, Triphala 750.0 mg, Chitraka (*Plumbago zeylanica*) 130.0 mg, Shatavari (*Asparagus racemosus*) 187.5 mg, Ashwa gandha (*Withania somnifera*) 187.5 mg, Pippali (*Piper longum*) 125.0 mg, Shunthi (*Zingiber officinale*) 125.0 mg, Maricha (*Piper nigrum*) 130.0 mg, Vacha (*Aconus calamus*) 125.0 mg, Yashthimadhu (*Glycyrrhizo glabra*) 750.0 mg, Sara punkha (*Tephrosia purpourea*) 750.0 mg, Bhringraj (*Eclipta alba*) 375 mg, Sariva (*Hemidesmus indicus*) 437.5 mg.

RESULTS AND DISCUSSION

The growth rate significantly (P> 0.1) increased in G4 at fifth week. The higher growth rate and weight gain of broilers was found in all treatment groups as compared to control group. Supplementation of herbal products improved growth rate in broilers. Results are in confirmation with those reported by Gujral *et al.* (2002), Bisht *et al.* (2006); Vidyarthi *et al.* (2008). The higher feed conversion efficiency was noticed in group G4, herbal liver stimulant feed supplement has efficient feed conversion ratio (P > 0.01) as compared to control group, it can be due to blend of herbs mixture is favorable to better feed conversion efficiency, similar results also reported by Gujral *et al.* (2002); Debnath *et al.* (2015). Use of herbal growth promoters improved feed conversion ratio and feed efficiency because they have stomachic, aperitive, disease or deformity during experimental period. Herbal growth promoters results may be attributed due to an immuno-modutator, antistress property and performance-enhancement attributes The dressing percentage was found maximum in group G4 followed

Table 1: Effect of herbal liver stimulants on growth performance of broiler

Trait	G1	G2	G3	G4
Body weight (g)				
0 week	44.16±1.99	44.40±1.97	44.72±1.62	44.96±2.03
I week	124.00±11.27	136.00±14.43	141.00±11.63	143.00±10.89
II week	274.00±15.00	293.00±15.87	302.00±12.99	307.00±18.08
III week	524.00±21.21	551.00±26.92	565.00±20.66	572.00±27.50
IV week	849.00±34.06	885.00±27.72	904.00±25.61	914.00±37.33
V week	1210.00±42.93	1255.00±40.28	1278.00±32.53	1290.40±42.66
Feed consumption (g)				
I week	110.18	123.66	129.02	130.39
II week	230.38	238.64	241.5	242.72
III week	425.00	430.86	436.58	437.25
IV week	591.50	601.2	607.17	608.76
V week	685.9	695.9	703.12	703.87
Total upto V week	2042.96	2090.26	2117.39	2122.99
Feed conversion efficiency				
I week	1.38	1.34	1.34	1.33
II week	1.54	1.52	1.50	1.48
III week	1.70	1.67	1.66	1.65
IV week	1.82	1.80	1.79	1.78
V week	1.90	1.89	1.88	1.87
Total upto V week	1.75	1.73	1.72	1.70
Mortality	-	-	-	-
Live weight (g)	1217.5±45.73	1237.5±36.63	1263.75±36.37	1261.25±28.54
Dressing (%)	73.44 ±0.03	74.66±0.81	74.91±0.82	75.81±0.82

by G3, G2 and G1. The differences among treatment was found statistically significant (P<0.05). The increase in dressing yield due to herbal supplementation is in agreement with those of Pal *et al.* (2013) and Sharma *et al.* (2008).

CONCLUSION

The findings of the study indicates that blend of herbal liver stimulant supplementation in broiler ration level @ 9 ml/100 broiler chicks/day upto 0-3 weeks of age and @12 ml/100 broiler chicks/day upto 3-5 weeks of age respectively is profitable in broiler production. So it may be used as an alternative of antibiotic growth promoters.

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