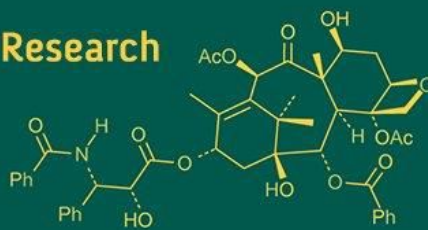


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Effect of dietary herbal feed additive supplementation on growth performance and feed efficiency in broiler chickens under farm conditions

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Abstract

The present study was conducted to evaluate the effect of a herbal feed additive on growth performance and feed conversion ratio in broiler chickens under farm conditions. A total of 200 day-old commercial broiler chicks were randomly divided into two groups with 100 birds in each group. The control group (T₀) was fed a basal diet, while the treatment group (T₁) was fed the basal diet supplemented with a herbal feed additive at the rate of 500 g per ton of feed. The experiment was conducted for 42 days. Body weight, feed intake and feed conversion ratio (FCR) were recorded weekly. At the end of the experiment, the treatment group showed significantly higher body weight and better FCR as compared to the control group. Feed intake was slightly reduced in the supplemented group. The results of the present study indicate that herbal feed additive supplementation can improve growth performance and feed efficiency in broiler chickens under field conditions.

Keywords: Broiler, herbal feed additive, growth performance, FCR, poultry

Introduction

The poultry industry is one of the fastest growing sectors of animal agriculture in India. Feed accounts for nearly 65-70 per cent of the total cost of broiler production. In recent years, the use of antibiotic growth promoters has been discouraged due to concerns regarding antibiotic resistance and residues in poultry products. Therefore, there is increasing interest in the use of herbal feed additives as natural growth promoters.

Herbal feed additives such as garlic, neem, turmeric, and ashwagandha are known to possess antimicrobial, digestive stimulant and immunomodulatory properties. These properties may help in improving gut health, nutrient utilization and overall performance of birds. The present study was undertaken to evaluate the effect of a herbal feed additive on growth performance and feed efficiency of broiler chickens under farm conditions.

Materials and Methods

Experimental birds and management

The experiment was conducted at a commercial poultry farm in Gujarat, India. A total of 200 day-old commercial broiler chicks were procured and reared under standard management conditions. Birds were vaccinated as per standard vaccination schedule and provided ad libitum feed and water.

Experimental design

The birds were randomly divided into two groups

- T₀ (Control): Basal diet without any supplement
- T₁ (Treatment): Basal diet + herbal feed additive @ 500 g/ton of feed

Each group contained 100 birds

Feeding schedule

Both groups were fed standard broiler starter and finisher ration as per BIS specifications. The herbal feed additive used in the treatment group contained a mixture of garlic, turmeric, neem and other medicinal herbs.

Parameters recorded

- Weekly body weight
- Weekly feed intake
- Feed Conversion Ratio (FCR)
- Mortality (if any)
- Economics

Statistical analysis

The data were analyzed using standard statistical methods and the mean values of both groups were compared.

Results and Discussion**Body weight**

At the end of 42 days, the average body weight of birds in the treatment group (T₁) was higher than that of the control group (T₀). The improvement in body weight may be attributed to better digestion and improved gut health due to herbal supplementation.

Group	Final body weight (g.)
T ₀	2250 ± 45
T ₁	2380 ± 40

Feed intake

The feed intake was slightly lower in the treatment group compared to the control group, indicating better feed utilization.

Group	Total feed intake (g.)
T ₀	3950 ± 60
T ₁	3850 ± 55

Feed Conversion Ratio (FCR)

The FCR was improved in the herbal supplemented group. The improved performance may be due to antimicrobial and digestive stimulant properties of the herbal ingredients which improve nutrient absorption and gut health.

Group	FCR
T ₀	1.75
T ₁	1.62

The improved performance may be due to antimicrobial and digestive stimulant properties of the herbal ingredients which improve nutrient absorption and gut health.

Economics**ROFC**

Group	Income	Feed cost	ROFC
T ₀	225	150.10	74.90
T ₁	238	146.69	91.31

The return over feed cost (ROFC) was higher in the herbal supplemented group (₹91.31 per bird) compared to the control group (₹74.90 per bird), indicating better economic efficiency of broiler production with herbal feed additive supplementation.

Cost-Benefit ratio

Net profit = Gross return - (Feed cost + Chick cost + Medicine + Litter + Electricity + Labour + Additive cost)

Item	Cost (INR)
Day old chick	40
Medicine & Vaccine	6
Litter & Disinfectant	4
Electricity & Brooding	5
Labour & Misc	5
Herbal additive	0.4

Total cost calculation**Control (T₀)**

- Feed = 150 INR
- Other cost = 60 INR
- Total cost = 210.10 INR

Treatment (T₁)

- Feed + Additive = 146.69 INR
- Other cost = 60.40 INR
- Total cost = 207.09 INR

Income

Group	Body weight	Rate (INR)	Income (INR)
T ₀	2.25 Kg	100/kg	225
T ₁	2.38 Kg		238

Economic summary

Group	Total cost (INR)	Gross return (INR)	Net profit (INR)
T ₀	210.10	225	14.90
T ₁	207.09	238	30.91

The net profit per bird was higher in the herbal supplemented group (₹30.91) compared to the control group (₹14.90), indicating better economic efficiency of broiler production with herbal feed additive supplementation.

Conclusion

It can be concluded from the present study that supplementation of herbal feed additive in broiler diet improves growth performance and feed conversion efficiency under farm conditions. Therefore, herbal feed additives can be used as a natural and safe alternative to antibiotic growth promoters in broiler production.

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References

1. AOAC (Association of Official Analytical Chemists). Official methods of analysis of Association of Official Analytical Chemists International. 16th ed. Arlington (VA): AOAC International; 1995. p. 1-1025.
2. Banerjee GC. Poultry. 3rd ed. New Delhi: Oxford & IBH Publishing; 2010. p. 1-550.
3. Kumar M, Kumar V, Roy D, Kushwaha R, Vaiswani S. Application of herbal feed additives in animal nutrition-a review. Int J Livest Res. 2014;4(9):1-8.
4. Al-Kassie GA. Influence of two plant extracts derived from thyme and cinnamon on broiler performance. Pak J Nutr. 2009;8(3):255-259.
5. Hernandez F, Madrid J, Garcia V, Orengo J, Megias MD. Influence of two plant extracts on broilers performance, digestibility, and digestive organ size. Poult Sci. 2004;83(2):169-174.

6. Cross DE, McDevitt RM, Hillman K, Acamovic T. The effect of herbs and their associated essential oils on performance, dietary digestibility and gut microflora in chickens from 7 to 28 days of age. *Br Poult Sci*. 2007;48(4):496-506.
7. Windisch W, Schedle K, Plitzner C, Kroismayr A. Use of phytogetic products as feed additives for swine and poultry. *J Anim Sci*. 2008;86(Suppl 14):E140-E148.
8. Toghyani M, Toghyani M, Gheisari A, Ghalamkari G, Eghbalsaied S. Evaluation of cinnamon and garlic as antibiotic growth promoter substitutions on performance, immune responses, serum biochemical and haematological parameters in broiler chicks. *Livest Sci*. 2011;138(1-3):167-173.
9. Izzat SS, Najm HF, Salih HA, Tofiq SS, Tahir SA, Kamal RB, *et al*. A recent review of medical uses of bioactive secondary metabolites from some plants available in the Kurdistan Region. *Passer J Basic Appl Sci*. 2025;7(2):849-864.
10. Al-Jaf HAK, Del YK, Kara MA. Effect of sumac, yeast, and onion on broiler chicken performance. *Turkiye Tarimsal Arastirmalar Derg*. 2022;9(1):1-7.
11. Mohammadi Gheisar M, Kim IH. Phytobiotics in poultry and swine nutrition-a review. *Ital J Anim Sci*. 2018;17(1):92-99.
12. Hashemi SR, Davoodi H. Herbal plants and their derivatives as growth and health promoters in animal nutrition. *Vet Res Commun*. 2011;35(3):169-180.