

Growth performance of Broilers Fed with Neem Leaf powder (*Azadirachta indica*) and Amprolium as coccidiostat feed additives

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Abstract:

*The present study was conducted to evaluate the effect of different levels of neem leaf powder (*Azadirachta indica*) in comparison with amprolium on performance of broilers. (240) day old broiler chicks divided into five groups, T₀, T₁, T₂, T₃ and T₄ which were supplemented with neem leaf powder @ 0g, 100g, 150g and 200g/50kg diet and amprolium at the recommended dose (25g/50Kg) of broiler diet, respectively were given to the experimental groups from the first day of age to the 35 days continuously, average weekly body weight was significantly improved in T₁, T₂ and T₄ as compared to control group. Weight in gain and feed conversion ratio (FCR) were*

non significantly improved in T1 and T4 . Amprolium and Neem @100g/50Kg diet economically better than other treatments.

Key words: Broilers, Neem Leaf powder (*Azadirachta indica*), Amprolium, coccidiostat feed additives

Introduction

Coccidiosis is one of the most detrimental and lethal managerial disease of poultry. Coccidiosis is rapidly developing intestinal disease presenting with bloody diarrhea and listlessness. It causes heavy mortality in affected flock. The losses due to coccidian outbreak are primarily by impaired feed conversion, depressed growth, lost pigmentation and downgrading at processing and mortality (McDougald and Roberts, 1988). Field experience indicates that a severe *E. tennela* infection, due to bad litter, is in many cases followed by intestinal *E. coli* infection (Stroom and Sluis, 1999). The feed manufacturers are using synthetic feed additive anticoccidial in the feed to combat the coccidiosis. The prolonged use of synthetic anticoccidials often develop resistant in birds to these drugs. On the other hand, commercial coccidiostats lead to increase cost of poultry rations (Hayat *et al.*, 1996). Under these circumstances, it seems imperative that alternate economical ways and means be explored to avoid the use of expensive coccidiostats. Neem (*Azadirachta indica*) is the most useful traditional medicinal plant and a valuable natural product for the development of medicinal recipes against various diseases (Biswas *et al.*, 2002). Neem possess Limonoids, protolimonoids, tetranortriterpenoids, pentanortri - terpenoids, hexanortriterpenoids and some nonterpenoid (Koul *et al.*, 2006). Dry leaves of Neem are beneficial in IBD affected broilers (Sadekar *et al.*, 1998).

The present study was, therefore planned to investigate the effect of herb (Neem leaf powder) in comparison with amprolium in broilers chicken.

Materials and methods

Chicken and feed composition: (240) day-old broiler chicks were procured from a local hatchery. The chicks were divided randomly into 5 groups of (48 chicks) in each. All the groups were divided into sub groups with (12 chicks) in each. Chicks were fed starter ration up to 3 weeks of age and then broiler finisher ration up to 5 weeks of age. The standard broiler starter ration contained CP:22 and, ME:2900 and broiler finisher ration contained CP : 19 and ME:3000 were fed ad lib to the birds as per BIS (1992). The fresh young Neem leaves were collected within the estate of college. The leaves were sun-cured for 3-4 days so as to maintain its greenish coloration and to reduce the bioactive components. The Neem leaves were ground to particle size of 2mm sieve using a hammer mill.

Experimental groups: There were 5 experimental groups and each was having 12 chicks. Different groups of chicks were assigned to various rations with different supplementations from day one till end of experiment (35) days as the following treatment:

- T1. Basal diet (control)
- T2. Basal diet + NLP (100 g/50 kg diet)
- T3. Basal diet + NLP (150g/50 kg diet)
- T4. Basal diet + NLP (200g/ 50 kg diet)
- T5. Basal diet+Amprolium(at the recommended dose)

Parameters: study weekly live body weight, feed consumption, gain in weight and feed conversion ratio.

Statistical analysis: The data on various parameters were recorded tabulated and statistically analyzed using analysis of variance (ANOVA) technique as per Snedecar & Cochran (1994).

Results and Discussion:

Weekly body weight: Mean weekly body weight of broilers in T₀, T₁, T₂, T₃ and T₄ was 603.73 , 643.24, 633.82, 580.05g and 620.69 g respectively. The differences in mean weekly body weight of broilers were significant (Table 2). Highest mean weekly body weight of broilers was recorded in T₁ (643.24), followed-by T₂ (633.82),-T₄ (620.69), T₀ (603.73)andT₃ (580.05) , and the differences in these values of weekly body weights were found significant indicated that all the treatment had equal effect on body weight of the chicks . The broiler in T₁, T₂, and T₄ registered significantly higher body weight compared to control.

Weekly gain in weight: Mean weekly weight gain of broilers in T₀, T₁, T₂, T₃ and T₄ was, 238.06, 258.29, 248.69, 234.11 and 246.06 g respectively. The differences in mean weekly weight gain of broilers were significant (Table 3). Highest mean weekly body weight of broilers was recorded in T₁ (258.29), followed-by T₂ (248.69),T₄ (246.06) T₀ (238.06),, and T₃ (234.11), however the differences in these values of weekly weight gain were found not `significant indicating thereby non significant effect of treatments on weekly weight gain of broilers. .

Feed consumption; Mean weekly feed consumption of broilers in T₀, T₁, T₂, T₃ and T₄ was 474.56, 479.88, 505.28, 414.91 g and 461.29 respectively. The differences in mean weekly feed consumption of broilers were not significant (Table 2). Highest mean weekly feed consumption of broilers was recorded in T₂

(505.28), followed-by T1 (479.88), T0 (474.56), T4 (461.29), and T3 (414.91). However the differences in these values of weekly feed consumption were found not significant indicating thereby a non significant effect of treatments on weekly feed consumption of broilers.

FCR: Mean weekly FCR of broilers in T0, T1, T2, T3 and T4 was 1.90, 1.80, 1.96, 1.88 and 1.80g, respectively. The differences in mean weekly FCR of broilers were not significant (Table 2). highest mean weekly FCR of broilers was recorded in T2 (1.96), followed-by T0(1.90) , T3 (1.88), T4(1.80) and T1 (1.80), however the differences in these values of weekly FCR were found not significant indicating thereby a non significant effect of treatments on weekly FCR of broilers.

Table (1) Ingredients and nutrient composition of experimental diet

Ingredients (%)	Broiler starter (0-21 days)	Broiler finisher (22-35 days)
Maize	60.00	63.00
Ground nut cake	23.35	18.00
Fish meal	13.00	15.00
Mineral mixture	3.00	3.00
Common salt	0.05	0.38
Vitamin premix (vit. A, B ₂ , D ₃)	0.05	0.02
Nutrient composition		
Moisture (%)	6.29	6.22
Crude fibers (%)	5.50	6.00
Total ash (%)	8.02	9.34
Crude protein (%)	22	19
ME (Kcal/kg)	2900	3000

Table-2. Results of growth parameters of broilers.

Week Treatments	Weekly body weight (g)	Weekly Weight gain (g)	feed consumption	F C R
T0	603.73**	238.06*	474.56*	1.90*
T1	643.24**	258.29*	479.88*	1.80*
T2	632.82**	248.69*	505.28*	1.96*
T3	580.05**	234.11*	414.91*	1.88*
T4	620.69**	246.06*	461.29*	1.80*

** Significant * non significant