

Effect of *Azadirachta indica* leaf powder as coccidiostat feed additive on the growth performance in broiler chicks

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Abstract:

A experiment was conducted on 192 day old broiler chicks were divided into four groups, T0, T1, T2 and T3 which were supplemented with neem leaf powder @ 0g, 100g, 150g and 200g/50kg of broiler diet as coccidiostat respectively to evaluate the effect of NLP on performance of broilers. Based on body weight, T1 and T2 were recorded significantly higher mean weekly body weight than that of control group. Weight in gain were non significantly improved in T1 and T2. Supplementation of neem leaf powder 100 g, 150 g /50Kg diet was better economical Compared with other treatments.

Key words: *Azadirachta indica* leaf powder, coccidiostat feed additive, broiler chicks

Introduction

Coccidiosis is one of the most detrimental and lethal managemental disease of poultry (Soulsby 1982). It causes high mortality in affected flocks. Many anticoccidial drugs have been developed and introduced in the poultry industry all over the world. Since Levine (Levine 1939) discovered sulfanilamide would cure coccidiosis in chickens, various anticoccidial feed additives, predominantly polyether ionophorous antibiotics, have been developed and used (Matsuda *et al*1989). While effective for avian coccidiosis, the continuous use and misuse of anticoccidial drugs have led to the emergence of drug-resistant strains (Long1982, Ruff and Danforth 1996). To prevent the emergence of drug resistant strains, new drugs have been developed and administered on a rotational basis with existing drugs. 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 posses 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). Therefore, this study designed to evaluate the effect of *Azadirachta indica* (Neem) leaf powder as coccidiostat on performance of broiler chicken

Materials and Methods

1 Study site The study was carried out of broiler Production Unit of the Sanderson School of Animal Husbandry and Dairying SHIATS.

2 Experimental Birds and diet (192) Day old broiler chicks (DOC) of same hatch were procured and divided randomly into 4 groups with (48 chicks) in each, all the groups were divided into sub groups of (12 chicks) in each to reared as replicate. Water with feed were provided. A bulb of 100 watts was fitted in each chamber. Broilers were provided floor space of 1 sq. ft /a birds each. The chicks were reared under deep litter system using sawdust with thickness of (5.3 cm). Equipments were properly cleaned, disinfected and sterilized before use. Chicks were fed starter ration up to 3 weeks age and then broiler finisher ration up to 5 weeks of age (22 – 35 days). 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). Table (1) 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.

3 Experiment design was as follows:

1. Basal diet (control)
2. Basal diet + NLP (100 g / 50kg diet)
3. Basal diet + NLP (150 g/ 50kg diet)
4. Basal diet + NLP (200 g/50kg diet)

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

Analysis of Experiment data:

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

consisting of four treatments, one control and three replications. (Table 1).

Results and Discussion

1- Body weight

Mean weekly body weight of broilers in T₀, T₁, T₂, , and T₃ was 603.73 , 643.24, 633.82, and 580.05g .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),-T₀ (603.73),and T₃ (580.05) the differences in these values of weekly body weights were found significant .The broilers in T₁, T₂, registered significantly body weight compared to control (T₀).

2 Gain in weight

Mean weekly weight gain of broilers in T₀, T₁, T₂, and T₃ was, 238.06, 258.29 ,248.69 , and 234.11 g, respectively. The differences in mean weekly weight gain of broilers were not significant (Table 2). Highest mean weekly body weight of broilers was recorded in T₁ (258.29), followed-by T₂ (248.69),-T₀ (238.06), and T₃ (234.11), however the differences in these values of weekly weight gain were found not `significant indicating thereby no significant effect of treatments on weekly weight gain of broilers.

3-Feed consumption

Mean weekly feed consumption of broilers in T₀, T₁, T₂, and T₃ was 474.56, 479.88, 505.28, and 414.91 g, respectively. The differences in mean weekly feed consumption of broilers were significant (Table 2). Highest mean weekly feed consumption of broilers was recorded in T₂ (505.28), followed-by T₁ (479.88), T₀ (474.56), and T₃ (414.91), however the differences in these values of weekly feed consumption were found significant indicating thereby a significant effect of treatments on weekly

feed consumption of broilers. The broilers feed consumption were lower in T3, compared to control (T0).

4-FCR

Mean weekly FCR of broilers in T0, T1, T2, and T3 was 1.90, 1.80, 1.96, and 1.88g, 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), T0 (1.90) followed by T3 (1.88), and T1 (1.80), however the differences in these values of weekly FCR were found not significant indicating thereby 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	Week body weight (g)	Weekly gain in weight	feed consumption	Feed conversion
T0	603.73**	234.91*	492.75*	1.90*
T1	643.27**	258.13*	479.88*	1.80*
T2	632.47**	235.34*	505.28*	1.96*
T3	579.95**	234.72*	444.90*	1.88*

** Significant , * non significant