

Production Performance of Broilers Fed with Different Oils in the Ration

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(Received : 29-10-2015; Accepted : 15-02-2016)

Abstract

An experiment was conducted by using one hundred and twenty, commercial (Vencobb), sexed, day-old broiler chicks for a period of six weeks to study the comparative effect of dietary supplementation of different vegetable oils *viz.* coconut oil, groundnut oil and ricebran oil. The supplementation of different oils in the diet of broilers had no significant influence on body weight, body weight gain, cumulative feed consumption and feed conversion ratio of broilers at six weeks of age. Based upon this study, it is observed that basal oil + groundnut oil (T₂ group) recorded better profit margin than the other groups.

Key words: Vegetable oils, broiler ration, Production performance

Feeding management is one of the most important aspects of broiler production. Several types of oils are used in the broiler diets. The actual proportion of supplemented oil in a broiler diet depends on factors, such as availability, relative price and the effect on the feed manufacturing process. There is limited information available on the effects of dietary inclusion of different sources of oils on the modern day broilers selected for rapid growth. Therefore, the present study was undertaken to evaluate the response of broiler chickens to dietary inclusion of different commonly available oils, *viz.*, coconut oil, groundnut oil and rice bran oil individually.

Materials and Methods

The biological trial was conducted by using one hundred and twenty, commercial (Vencobb), sexed, day-old broiler chicks belonging to single hatch. These chicks were wing banded, weighed

and randomly grouped into three treatments with five replicates of eight chicks each and fed with basal diet as T₁ (Basal diet + Coconut oil), T₂ (Basal diet + Groundnut oil) and T₃ (Basal diet + Ricebran oil). An isocaloric and isonitrogenous experimental feed was formulated according to the Vencobb standards by supplementing different vegetable oils *viz.* coconut oil, groundnut oil and ricebran oil at 1 per cent, 2 per cent and 3 per cent level in pre-starter, starter and finisher diets, respectively for different treatment groups. All chicks were reared up to 6 weeks in deep litter system in open sided broiler house under standard managerial conditions throughout the experimental period. During this experimental period, data on body weight and feed consumption were recorded every week and mortality was recorded at occurrence.

Results and Discussion

The mean (\pm S.E.) production performance of broilers at 6 weeks of age as influenced by dietary supplementation of different vegetable oils are presented in Table I.

The analysis of variance of data on mean body weight (g) of broilers at sixth week revealed no significant difference between treatment groups. Similarly, the mean body weight gain (g) of broilers revealed no significant difference from first week to till the end of the experiment between treatment groups. Comparatively better body weight (1906.45g) and body weight gain (1859.88g) was recorded in T₂ (Basal diet + Groundnut oil), followed by T₃ (Basal diet + Ricebran oil) (1892.60g and 1846.56g), whereas the T₁ group (Basal diet + Coconut oil) birds recorded the lowest body weight (1879.38g) and body weight gain (1831.57g) at sixth week. Similar observations were made by Raju *et al.* (2005) who recorded non significant body weight

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Table 1. Mean (\pm S.E.) production performance of broilers at 6 weeks of age as influenced by dietary supplementation of different vegetable oils

Treatment groups	Body weight (g)	Body weight gain (g)	Cumulative feed consumption per bird (g)	Cumulative feed conversion ratio	Net profit per bird (Rs.)
T ₁ - Basal diet +Coconut oil	1879.38 \pm 39.56	1831.57 \pm 39.54	3170.25 \pm 64.42	1.73 \pm 0.02	17.86
T ₂ - Basal diet +Groundnut oil	1906.45 \pm 34.25	1859.88 \pm 34.36	3172.80 \pm 65.47	1.71 \pm 0.02	25.38
T ₃ - Basal diet + Ricebran oil	1892.60 \pm 35.72	1846.56 \pm 35.65	3130.18 \pm 38.38	1.70 \pm 0.02	13.61

gain due to dietary supplementation of groundnut oil, although showing beneficial effects on some biochemical variables. However, these findings do not agree with Purushothaman *et al.* (2005) who has stated that supplementation of ricebran oil in broilers had numerically higher body weight gain in comparison to other treatment groups.

Statistical analysis of data on cumulative feed consumption (g/bird) of broilers revealed no significant difference from first week onwards till the end of the experiment between treatment groups. There was no significant difference on mean cumulative feed conversion ratio between treatment groups due to dietary inclusion of different oils. However, better cumulative feed conversion ratio (1.70) was recorded in T₃ (Basal diet + Ricebran oil) group birds than rest of the treatment groups. These results are in agreement with the earlier reports of Anitha (2006) who found no significant difference in cumulative feed conversion ratio between treatment groups (crude ricebran oil at 0, 1, 2, 3, 4 and 5 per cent levels) from first week to sixth week except at second week ($P < 0.05$).

The total feed cost per bird was the highest in T₁ group (Rs. 111.22) and the lowest in T₃ group (Rs. 104.29). The production cost per kg live weight was the highest in T₁ group (Rs. 64.50) and the lowest in T₃ group (Rs. 60.39). The net profit per bird ranged from Rs. 13.61 to Rs. 25.38. The net profit per bird was the highest in T₂ group (Rs. 25.38) and

the lowest in T₃ group (Rs. 13.61). It is observed that basal oil + groundnut oil (T₂ group) recorded better profit margin than the other groups.

Summary

The supplementation of different vegetable oils in the broiler ration did not show significant improvement in production performances. Based upon this study, it is observed that supplementation of groundnut oil at 1 per cent, 2 per cent and 3 per cent level in pre-starter, starter and finisher diets, respectively (T₂ group) did not affect the production performance and recorded better profit margin than the other groups.

The authors are thankful to the Tamil Nadu Veterinary and Animal Sciences University, Chennai for providing financial grant and the Dean, Veterinary College and Research Institute, Namakkal for providing facilities to carry out this research project.

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