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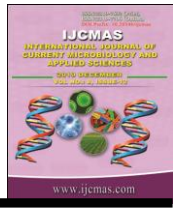

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Studies on Supplementation of Feed Additives on Carcass Characteristics and Slaughter Losses of Babcock Cockerels

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A B S T R A C T

The study was conducted on Babcock strain in the poultry unit of College of Veterinary Science and Animal Husbandry, Anjora, Durg, Chhattisgarh Kamdhenu University, Chhattisgarh to study the effect of supplementation of three commercially feed additives viz., Ambiplex, Protexin and Metazyme on carcass characteristics and slaughter losses of Babcock cockerels poultry birds. The Day old cockerel chicks were divided into four groups including control group up to 10 weeks. Each group had three replicates of 15 birds in each replicate The analysis of variance revealed that there was no significant effect in carcass characteristics viz., live weight (847.67 to 905.67 g), dressed weight (75.26 to 76.49%), eviscerated weight (70.12 to 71.70%) and giblet weight (4.75 to 5.14%) in all treatment groups. However, the mean values for bled weight percentage in T_4 (97.04±0.15) group was significantly ($P<0.05$) higher than T_2 (95.92±0.11) group. However above groups were statistically similar to T_1 and T_3 groups (96.36±0.12 and 96.44±0.38 respectively). In slaughter losses, the mean values of Feather loss (7.04 to 7.41), Evisceration loss (14.23 to 16.11) and Total loss (25.04 to 26.39) percentages among the treatment groups differed non-significantly. However, the mean blood loss percentage in T_4 group (2.96±0.15) was significantly ($P<0.05$) lower than that of T_2 (4.08±0.11) group. They were statistically similar to T_1 (Control) and T_3 groups (3.64±0.12 and 3.56±0.38 respectively).

Introduction

Cockerel farming is an indispensable component of poultry development with the rapidly increasing trends of commercial cockerel farming both urban and rural areas in India. In some parts of India, consumers prefer cockerel for its light weight and tender meat (Mohan *et al.,* 1990). Cockerels birds can be sold as the alternate of desi poultry birds at higher rate than that of broiler birds because of the consumer's prefer for its meat, characterized by leanness and good flavour. Cockerel rearing is increasing due to low cost of chicks price, higher market price than broilers, less morbidity and mortality, minimum management cost, minimum initial investment, higher market demand, low fat and cholesterol compared to broilers meat, less disease susceptible compared to other poultry, high organoleptic preference, family labour utilization and easier management. Cockerels are hardier than the broiler birds and flavour, taste, tenderness and juiciness are similar to the indigenous poultry birds. Cockerel meat contains 56% water and 320 calories / 100g of meat energy (Singh, 1990). Major research regarding effect of supplementation of feed additives viz., amino acids, vitamins, probiotics and multienzymes is less to broiler and layer birds. Studies regarding improving nutritive value of cockerel meat by supplementation of different feed additives would give accuracy to feeding management of this cockerel farming. There were lots of studies on feed additive supplementation in broiler diet (Das *et al.*, 2007). However information on the supplementation of feed additives in cockerel diets and their effect on carcass characteristics and slaughter loss percentage are scanty in Babcock cockerels. Hence present study was carried out to determine the effect of supplementation of feed additives i.e. Ambiplex (contain Nutritional value per 5 ml - Vitamin B_2- 2.5 mg**,** Vitamin B_6- 1.0 mg**,** Vitamin B_1- 7.0 mg, Vitamin B_{12}- 12.5 mcg, Biotin- 25.0 mcg, Niacin- 75.0 mg, Choline Chloride- 10.0 mg**,** Calcium Pantothenate- 2.5 mg**,** Lysine- 20.0 mg, Methionine- 10.0 mg), Protexin (contain Each 1g of Protexin contain *Lactobacillus acidophilus* 2.06 × 10^8 cfu/g, *Lactobacillus plantarum* 1.26 × 10^8 cfu/g,, *Lactobacillus casei* 2.06 × 10^8 cfu/g, *Lactobacillus bulgaricus* 2.06×10^8cfu/g, *Streptococcus faecium* 5.40 × 10^8 cfu/g, *Steptococcus thermophilus* 4.10 × 10^8 cfu/g, *Bifidobacterium bifidum* 2.00 × 10^8 cfu/g, Yeasts– Torulopsis species 5.32 × 10^7 cfu/g and *Aspergillus oryzae* 5.32 × 10^7 cfu/g, Total viable count 2 × 10^9 cfu/g and Metazyme BP (contain Cellulase, Protease, Hemicellulase, Xylanase, Pectinase, Phytase, B Glucanase, Amylase, B mannanase, Lipase with additional phytase activity of 200 FYT/g) on carcass characteristics and slaughter loss percentage of Babcock cockerel.

Materials and Methods

Day old BV 300 strain of 180 number Babcock cockerel chicks were distributed into four groups, including three replicates with 15 chicks each. The chicks of all groups were reared in separate pens on litter make up of rice husk and offered basal feed i.e. cockerel starter and finisher ration for 0-5 and 6-10 weeks. The cockerel starter feed (0-5 weeks) contained 3.4, 18.9, 5.2, 30.9, 4, 12.2 and 9.2%, while the cockerel finisher ration (6-10 weeks) contained 2.1, 19.5, 6.2, 32.2, 4.1,12.4 and 9.4% of fat, protein, fibre, starch, sugar, moisture and ash, respectively. Standard management practices similar to layer chicks were followed in experimental poultry unit during brooding and finisher period. The experimental birds were vaccinated against New Castle Disease at 7th and 21st day and Infectious Bursal Disease at 14th day of age. Beak trimming was performed at 25th day of age. One group was maintained as Control (T_1) and three groups were supplemented with different commercial feed additives i.e., Ambiplex (T_2) @ 5-6 ml/100 birds for chicks

& 8-10 ml/100 birds for grower, Protexin (T_3) @ 1g/lit of water and Metazyme BP (T_4) @ 250g/ton of feed respectively. Body weights of the birds were taken using electronic balance at day old stage then at weekly intervals up to 10 weeks of age. The birds were allowed to fast for 16 hours (Overnight).

However, drinking water was provided ad libitum during fasting. Single bird of each replication was randomly selected for slaughter and dressed slaughtering procedure described by (Kotula *et al.*, 1960) at the end of 10^{th} weeks to study the carcass characteristics parameters i.e. live weight of birds, bled weight percentage, dressed weight percentage, eviscerated weight percentage, giblet weight percentage and Slaughter losses i.e. blood loss percentage, feather loss percentage and evisceration loss percentage.. The data were analyzed using one way ANOVA and for test of significance Duncan's Multiple Range Test (DMRT) was performed as per the method described by (Snedecor and Cochran, 1994).

All the above cuts were weighed separately with sensitive electronic balance, and percent yields were computed in relation to eviscerated weight. All the measurements on the carcass as well as in the live birds were taken to the nearest of 0.5g accuracy.

Live weight– The birds were weighed on electronic balance at weekly interval to calculate live weight gain.

Bled weight: It is the weight of carcass after bleeding.

Dressed weight: It is the weight of carcass after defeathering.

Eviscerated weight: It is the weight of carcass after evisceration.

Giblet weight: It is the weight of liver, heart and gizzard together.

From traits measured above the following parameters were computed as derived traits

$$\% \text{ Eviscerated weight} = \frac{\text{Eviscerated wt.}}{\text{Live wt.}} \times 100$$

$$\% \text{ Giblet weight} = \frac{\text{Giblet wt.}}{\text{Live wt.}} \times 100$$

$$\% \text{ Total meat yield (Dressing \%)} = \frac{\text{Eviscerated wt. + giblet wt.}}{\text{Live wt.}} \times 100$$

$$\% \text{ Blood Loss} = \frac{\text{Live wt. - bled wt.}}{\text{Live wt}} \times 100$$

$$\% \text{ Feather loss} = \frac{\text{Bled wt. - Dressed wt.}}{\text{Live wt.}} \times 100$$

$$\% \text{ Eviscerated loss} = \frac{\text{Dressed wt. - (Eviscerated wt. + Giblet wt.)}}{\text{Dressed wt.}} \times 100$$

% Total processing loss = % Blood Loss + % Feather loss + % Eviscerated loss

Results and Discussion

The means and standard error for carcass characteristics after slaughter of chicken at the end of 10^{th} weeks in different treatment groups is presented in (Table 1 and Figure 1). In present investigation mean value of live weight of birds taken randomly for study of

carcass characteristics for T_1, T_2, T_3 and T_4 was 905.67±24.88, 847.67±26.39, 849.00±39.88 and 856.00±9.00g, respectively. The mean values of bled weight percentage in T_4 was 97.04±0.15 respectively, which were significantly (P<0.05) higher than T_2 i.e. 95.92±0.11 respectively. Further which was statistically similar to T_1 and T_3 groups (96.36±0.12 and 96.44±0.38 respectively). The mean values for dressed weight percentage in T_1, T_2, T_3 and T_4 were 76.49±1.28, 76.24±0.20, 75.80±0.88 and 75.26±0.68 respectively, which were statistically non-significant from each other. The mean values for eviscerated weight percentage in T_1, T_2, T_3 and T_4 were 71.70±1.36, 71.48±0.36, 70.98±0.87 and 70.12±0.58g respectively, which differed non-significantly from each other. The mean values for giblet weight percentage in T_1, T_2, T_3 and T_4 were 4.80±0.35, 4.75±0.33, 4.82±0.21 and 5.14±0.27g respectively, which differed non-significantly from each other. Overall except the bled weight percentage significant differences were not found in other carcass characteristics of cockerels of the different treatment groups, indicating no influence of feed additives on these characteristics of cockerels. Similar findings were reported by many research workers (Trishna *et al.,* 2011; Toghyani *et al.*, 2011; Songsak 2008; Mohamed *et al.,* 2008; Ramesh *et al.*, 2011; Rambabu *et al.,* 2011, Zakaria *et al.*,2010 and Ahmed and Abbas, 2011).

The means and standard errors for slaughter losses of cockerels fed with different feed additives at the end of the trial in different treatment groups are presented in (Table 2 and Figure 2). In present investigation mean value of blood loss percentage in T_4 group (2.96±0.15) was significantly (P<0.05) lower than that of T_2 (4.08±0.11). However, they were statistically similar to T1 (Control) and T3 groups (3.64±0.12 and 3.56±0.38 respectively). The mean values of feather loss percentage in T_1, T_2, T_3 and T_4 groups were 7.07±0.24, 7.04±0.36, 7.41±0.74 and 7.32±0.39 respectively, which differed non-significantly from each other. The mean values of evisceration loss percentage in T_1, T_2, T_3 and T_4 groups were 14.32±1.70, 14.23±0.31, 14.85±0.21 and 16.11±1.00 respectively, which were statistically non-significant and T_4 groups were 25.04±1.42, 25.34±0.24, 25.82±1.03 and 26.39±0.74 respectively, which differed non-significantly from each other. Present findings are in agreement with the findings of Trishna *et al.,* (2011), Toghyani *et al.,* (2011), Songsak (2008), Rambabu *et al.,* (2011), Singh *et al.,* (2010), Zakaria *et al.,* (2010), Muthukumarasamy *et al.,* (2004) and Onu *et al.,* (2010). The feed additive supplementation had non-significant effect on carcass characteristics live weight, bled weight, dressed weight, eviscerated weight, giblet weight), slaughter losses (feather loss, blood loss, evisceration loss and total loss). In present investigation, no mortality among the experimental bird of any group was observed.

Table.1 Mean (±SE) carcass characteristics in cockerels under different treatment groups

Traits	Age in weeks	T_1(control)	T_2	T_3	T_4
Live Weight (g)	10	905.67±24.88	847.67±26.39	849.00±39.88	856.00±9.00
Bled Weight %	10	$96.36±0.12^{ab}$	$95.92±0.11^{b}$	$96.44±0.38^{ab}$	$97.04±0.15^{a}$
Dressed Weight %	10	76.49±1.28	76.24±0.20	75.80±0.88	75.26±0.68
Eviscerated Weight %	10	71.70±1.36	71.48±0.36	70.98±0.87	70.12±0.58
Giblet Weight %	10	4.80±0.35	4.75±0.33	4.82±0.21	5.14±0.27

Means bearing different superscripts in a row differed significantly (P<0.05)

Table.2 Mean (±SE) of slaughter losses in cockerels under different treatment groups

Traits	Age in weeks	T_1(control)	T_2	T_3	T_4
Blood loss %	10	3.64±0.12^{ab}	4.08±0.11^{a}	3.56±0.38^{ab}	2.96±0.15^{b}
Feather loss %	10	7.07±0.24	7.04±0.36	7.41±0.74	7.32±0.39
Evisceration loss %	10	14.32±1.70	14.23±0.31	14.85±0.21	6.11±1.00
Total % loss	10	25.04±1.42	25.34±0.24	25.82±1.03	26.39±0.74

Means bearing different superscripts in a row differed significantly (P<0.05)

Fig.1 Mean of carcass traits (Percentage) of cockerels under different treatment groups

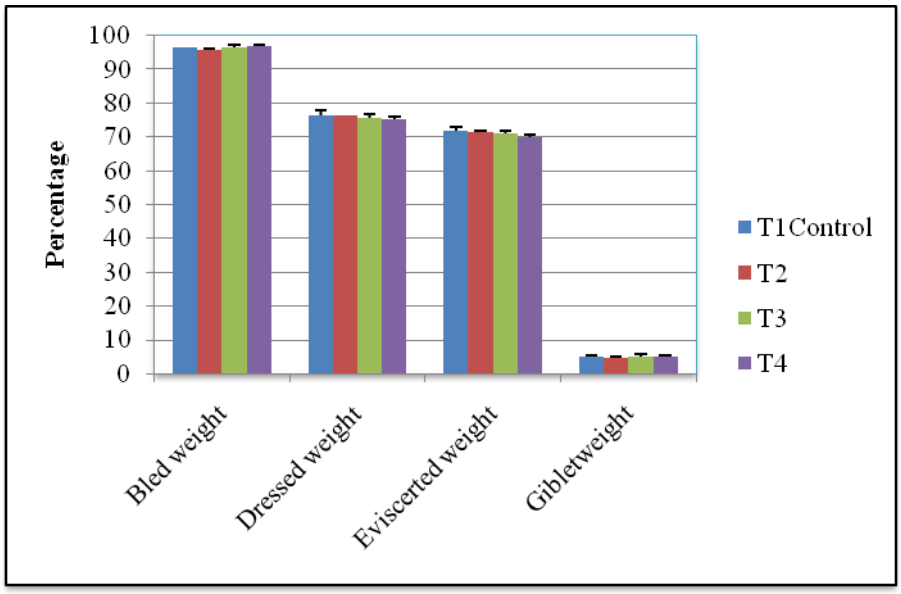
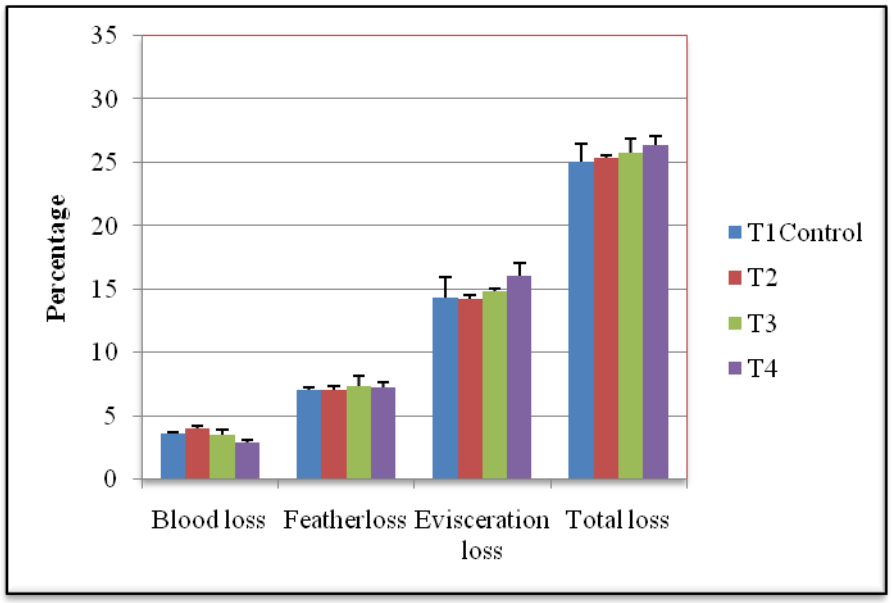


Fig.2 Mean slaughter losses (Percentage) of cockerels under different treatment groups



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