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Early post-hatch nutrition programming on carcass characteristics of broiler chicken

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Abstract
A study was conducted at College of Poultry Production and Management, Hosur to evaluate the early post-hatch nutrition programming on carcass characteristics of commercial broiler chicken. The treatment groups consisted of T_1 (Control + Basal diet alone), T_2 (Basal diet + Glucose), T_3 (Basal diet + Whey protein), T_4 (Basal diet + Probiotic), T_5 (Basal diet + Prebiotic) and T_6 (Basal diet + Synbiotic) fed in the hatcher trays from 19 to 21st days of incubation. The carcass characteristics like Ready-to-cook yield, eviscerated yield, gizzard weight, liver weight, heart weight and abdominal fat weight of broiler chicken was studied at 35th day of age. The results of the study revealed a significant (p<0.05) increase in eviscerated yield and liver weight in basal diet + synbiotic (T_6) and basal diet + glucose (T_2) groups, respectively. However, no significant difference was observed in Ready-to-cook, abdominal fat, heart and gizzard percentage.

Keywords: Early post-hatch, commercial broiler chicken, carcass characteristics, ready-to- cook yield

Introduction
All chicks remain in the incubator until the majority of the chicks have emerged from the shell. This means that, under actual circumstances chicks are deprived of feed and water for up to 72 hours which causes poor viability of day-old chicks. The nutritional limitations can be alleviated by implementing nutritional conditioning approach in the last few days before hatch through the first few days after hatch. The carcass characteristics are the important factor to evaluate the quality of the production process. Hence the present study is aimed to assess the carcass characteristics of commercial broiler chicken at 35th day with respect to the early post-hatch nutrition fed to the chicks immediately after hatch in hatcher compartment.

Materials and Methods
The biological experiment was conducted with a total of three hundred and sixty hatching eggs. The treatment groups consisted of T_1 (Control + Basal diet alone), T_2 (Basal diet + Glucose), T_3 (Basal diet + Whey protein), T_4 (Basal diet + Probiotic), T_5 (Basal diet + Prebiotic) and T_6 (Basal diet + Synbiotic). In each treatment groups, sixty fertile eggs were transferred to a hatcher tray fitted with a feeding equipment to feed the broiler chicks immediately after hatch from 19 to 21st day of incubation. The experimental design comprises of six treatments with three replicates of twelve chicks each and reared under open-sided deep litter poultry housing system up to 35 days of age. At 35th day of age, 6 birds from each treatment group were subjected to slaughter studies and carcass characteristics were analysed.

Measurements of parameters
1. **Ready-to-cook yield:** The dressed carcass is weighed with heart, gizzard and liver.
2. **Eviscerated yield:** The dressed carcass is calculated without heart, gizzard and liver.
3. **Gizzard weight:** Inner kaolin layer is peeled off and contents inside the gizzard was removed and then weight was taken.
4. **Liver weight:** The liver weight is measured after removal of gall bladder from the liver.
5. **Heart weight:** The heart weight is taken after removal of the pericardium layer.
6. **Abdominal fat:** The abdominal fat pad is removed and weighed.

(* converted to percent of live weight).

Statistical analysis

The data collected on various response criteria were subjected to statistical analysis in Completely Randomized Design (CRD) as per the methods suggested by Snedecor and Cochran (1989) [1] and the means of different experimental groups were tested for statistical significance by Duncan's multiple range test (Duncan, 1955) [2].

Result and Discussion

Carcass characteristics

The mean carcass characteristics of broiler chicken (expressed as percentage of pre-slaughter live weight) at 35th day of age, as influenced by the early post-hatch nutrition is presented in the Table 1 and 2.

Table 1: Carcass characteristics (expressed as percentage of Pre-slaughter live weight) of broiler chicken at 35th day of age as influenced by early post-hatch nutrition

Treatment*	Ready-to- cook yield	Eviscerated carcass yield	Abdominal Fat
Control - Basal diet alone (T_1)	78.16±0.64	73.01^{ab}±0.70	0.78±0.17
Basal diet + Glucose (T_2)	77.48±0.36	72.16^{b}±0.44	0.80±0.11
Basal diet + Whey protein (T_3)	77.49±0.51	72.78^{ab}±0.38	0.79±0.17
Basal diet + Probiotics (T_4)	78.50±0.47	73.43^{ab}±0.33	0.72±0.20
Basal diet + Prebiotic (T_5)	77.10±0.49	72.32^{b}±0.49	0.62±0.15
Basal diet + Synbiotic (T_6)	79.09±0.65	74.21^{a}±0.70	0.78±0.20

Value given in each cell is the mean of 6 observations

[a-b] Means within a column with no common superscript differ significantly (p<0.05)

*- The Treatment diets were given to chicks in Hatcher compartment immediately after hatch

Table 2: Giblet yield (expressed as percentage of pre-slaughter live weight) of broiler chicken at 35th day of age as influenced by early post-hatch nutrition

Treatment*	Gizzard	Liver	Heart	Giblet yield
Control - Basal diet alone (T_1)	2.27±0.13	2.26^{ab}±0.10	0.62±0.02	5.15^{ab}±0.20
Basal diet + Glucose (T_2)	2.29±0.13	2.34^{a}±0.06	0.69±0.02	5.32^{a}±0.13
Basal diet + Whey protein (T_3)	2.03±0.15	2.07^{b}±0.05	0.61±0.03	4.71^{b}±0.17
Basal diet + Probiotics (T_4)	2.32±0.10	2.10^{b}±0.10	0.65±0.03	5.07^{ab}±0.19
Basal diet + Prebiotic (T_5)	2.15±0.12	2.01^{b}±0.05	0.62±0.04	4.78^{ab}±0.14
Basal diet + Synbiotic (T_6)	2.12±0.08	2.05^{b}±0.04	0.71±0.05	4.88^{ab}±0.10

Value given in each cell is the mean of 6 observations

[a-b] Means within a column with no common superscript differ significantly (p<0.05)

*- The Treatment diets were given to chicks in Hatcher compartment immediately after hatch

Early post-hatch nutrition among different treatment groups had no significant difference in Ready-to cook yield. However, numerically higher ready-to-cook yield percent (79.09±0.65) was recorded in broiler chicken fed with the basal diet + synbiotic (T_6) as compared to the other treatment groups. The result of the present study is in agreement with the Chumpawadee *et al*. (2008) [3], who reported that early feeding did not affect significantly the ready-to-cook dressing percentage in broiler chicken.

The result of the current study revealed that the eviscerated percentage was significantly (p<0.05) higher in broiler chicken fed with the basal diet + synbiotic (T_6) which has recorded 74.21±0.70 percent as compared to the other treatment groups. The result of the present study is in agreement to the earlier work done by Shafey *et al*. (2011) [4], who observed that instant access to feed and water after post-hatch resulted in a significant gain in eviscerated carcass weight.

The result of the current study have shown that the early post-hatch nutrition did not have any significant effect on abdominal fat percentage. The results revealed that the similar findings are observed with the earlier work done by Kanagaraju *et al.* (2018) [5], who reported that early feeding did not affect significantly the abdominal fat in broiler chicken.

The result of the current study revealed that the early post-hatch nutrition did not have any significant effect on heart and gizzard weight. The results revealed that the similar findings are observed with the earlier work done by Husseiny *et al.* (2008) [6], who reported that early feeding did not affect significantly the heart weight in broiler chicken.

Birds fed with the basal diet + glucose (T_2) as early post-hatch digestible nutrients recorded significantly (p<0.05) higher liver weight and giblet yield (2.34±0.06 and 5.32±0.13 percent), respectively as compared to the other treatment groups. However, significant difference was reported by Prabakar *et al.* (2016) [7], who observed that the early post-hatch digestible nutrients had significant effect on carcass characteristics of broiler chicken.

Conclusion

Based on the results of the study, involving early post-hatch nutrition on carcass characteristics, it is concluded that basal diet + synbiotic group significantly increased eviscerated yield and numerically increased the ready-to-cook carcass yield of broiler chicken.

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References

1. Snedecor GW, Cochran WG. Statistical Methods. 8th Edn, Iowa State University Press Ames, USA. Iowa – 50010; c1989.
2. Duncan DB. Multiple range and multiple F-tests. Biometrics. 1955;11:1-42.
3. Chumpawadee S, Chinrasri O, Thassawan S, Ngamluan

S, Soychuta S. Effect of dietary inclusion of cassava yeast as probiotic source on growth performance, small intestine (ileum) morphology and carcass characteristic in broilers, Int. J Poult. Sci. 2008;7(3):246-250.
4. Shafey T, Aljumaah RS, Almufarrej SI, Al-Abdullatif AA, Abouheif MA. Effects of glucose supplementation of drinking water on the performance of fasting newly hatched chicks, Journal of Animal and Veterinary Advances. 2011;10(17):2202-2207.
5. Kanagarju P, Babu M, Ramesh S, Rathnapraba S, Yadav SM. Effect of early post-hatch feeding on the production performance of commercial broiler chicken, International Journal of Chemical Studies. 2018;6(2):3705-3707.
6. Husseiny OMEI, Abou EI S, Wafa, HMAEI Komy. Influence of fasting or early feeding on broiler performance, Int. J Poult. Sci. 2008;7(3):263-271.
7. Prabakar G, Moorthy M, Mani K, Mohan B. Production performance of broilers fed with glucose, egg powder and whey powder during juvenile period, Indian Vet. J. 2016;93(2):23-26.