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CARCASS QUALITY OF BROILERS SUPPLEMENTED WITH SHATAVARI AND VITAMIN E DURING WINTER SEASON

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ABSTRACT

The study was carried out to investigate the carcass quality of broiler supplemented with Shatavari and vitamin E during winter season. One hundred twenty day old chicks, randomly distributed into six groups were reared upto 6 weeks on standard managemental conditions during winter season. The powder of Shatavari and Vitamin E was added to the basal diet@ 0% and 0 mg/kg feed, 1% and 0 mg/kg feed, 1.5% and 0 mg/kg feed, 0% and 200 mg/kg feed, 1% and 200 mg/kg feed, 1.5% and 200 mg/kg feed in T_1 to T_6 respectively. The significant ($P<0.05$) increase in giblet %, meat %, leg weight % in Shatavari and Vitamin E treated groups than control group. Wings weight%, breast weight %, and back with neck weight % was significantly ($P<0.05$) higher in Shatavari and Vitamin E treated groups as compared to control group. Therefore, it can be concluded that supplementation of Shatavari and Vitamin E supplementation removes cold stress and production efficiency of broilers.

Key words : *Shatavari, vitamin E, broilers, carcass quality.*

India's rapidly growing poultry industry also offers investment opportunities for foreign players in activities such as breeding animal health, feed equipment and processing. Foreign investment in these activities is permitted but constrained by market uncertainty and poor infrastructure. Within the poultry sector, broiler production is growing much faster than the egg production. Feed is a major component, affecting net return from the poultry because cost of the feed accounts about about 65 to 70% for broiler production and is major factor which affects the production cost. To ensure more net return and to minimize high expenditure on feed; are the main challenges for which adding some of the growth stimulators as herbal and vitamin E in poultry diets. Asparagus racemosus is a medicinal plant grows all over India in tropical areas. The roots of asparagus are used mainly to promote growth by increasing appetite and immunity status (1). (2) reported that internal organ weight of broilers was increased in Shatavari supplemented groups.

Vitamin E is primarily known as an antioxidant in reducing cellular free radical damage. In addition, vitamin E may affect the development and maintenance of immunocompetence through multiple functions by acting directly on the immune cell or by indirectly altering metabolic and endocrine parameters, which in turn influence immune function (3). In addition, vitamin E along with selenium has been found to be essential for the proper growth and development (4). Therefore present study was planned to explore the effect of Shatavari and Vitamin E supplemention on carcass quality of broilers during winter season.

MATERIALS AND METHODS

The experiment was conducted during winter season on 120 day old broiler chicks maintained at experimental poultry farm, SVBPUAT, Modipuram Meerut-250110 Uttar Pradesh India. One hundred twenty day old Broiler chicks randomly divided into six groups of twenty (n=20) in each. Group 1 (T_1) supplemented commercial Ration only served as control. Group-II (T_2) supplemented commercial starter ration + 1% Shatavari Root Powder. Group-III (T_3) supplemented commercial starter ration + 1.5% Shatavari Root Powder. Group-IV (T_4) supplemented commercial starter ration + 200mg/kg feed of Vitamin E. Group-V (T_5) supplemented commercial starter ration + 1% Shatavari Root Powder + 200mg/kg feed of Vitamin E. Group-VI (T_6) supplemented commercial starter ration + 1.5% Shatavari Root Powder + 200mg/kg feed of Vitamin E. Shatavari (Asparagus racemosus) root purchased from the farmer and Vitamin E Capsules (Evion® 400, Merck Ltd.) were provided through thoroughly mixed with broiler starter feed. Broilers starter feed purchased from local market at Meerut of which chemical composition given in table

1. Each group was reared on deep litter upto six weeks on standard managemental conditions.

Live body weight of each bird recorded at the end of 6th week. Towards the end of trial three birds from each group were randomly selected and slaughtered by "Modified Kosher'' method. They were scalded manually and carefully dissected. The giblet, meat, leg, wings, breast and back with neck were weighed and the weights related to the live weight.

Data were analyzed by the general linear model (GLM) of statistical software package SPSS version 19 (SPSS for Windows, V19.0; SPSS, Chicago, IL, USA). The pair-wise comparison of treatment means was carried out using 'Tukey's Multiple Range Test'.

RESULTS AND DISCUSSION

Giblet percentage : In present study giblet % is highest in T6 in comparison to other groups of broiler (Table 1). Giblet % of treatment groups have significantly (P<0.05) higher as compared to control group that indicates as Shatavari and vitamin E supplementation improved the giblet %. Similar finding also reported by (5). Giblet % of all groups significant (P<0.05) to each other except T_2 vs. T_4 and T_3 vs T_5.

Meat percentage : In present experiment meat % was observed significantly higher in treatment groups in comparison to control group (Table-1). Present results agreed with the finding of (6). Which showed that Shatavari and vitamin E supplementation in broiler increase the meat %. Meat % of each group differs significantly except T_2 and T_4 group.

Leg weight percentage : Leg weight % was significantly (P<0.05) higher in treatment groups in comparison to control group of broilers (Table 1). Among treatment groups, T_6 has highest leg weight %. This indicates that combination Shatavari and vitamin E supplementation improved the leg weight % in treatment groups.

Wings weight percentage : In present experiment treatment groups showed significantly (P<0.05) higher wings weight % as compared to control group (Table-1). Which indicates that Shatavari and vitamin E supplementation in broiler increases the wings weight % in treatment groups.

Breast weight percentage : In present experiment breast weight % was observed significantly (P<0.05) higher in treatment groups as compared to control group (Table-1). Which showed that Shatavari and vitamin E supplementation in broilers increases the breast weight %. Groups T_2, T_3, T_4, T_5, and T_6 did not differ significantly (P<0.05) to each other.

Back with neck weight percentage

In present experiment back with neck weight % was observed significantly (P<0.05) lower in treatment groups as compared to control group (Table-1). The result indicates that Shatavari and Vitamin E supplementation in broiler decreases the back with neck weight %. Back with neck weight % of all groups differ significantly to each other except T_2 vs. T_4 and T_3 vs T_5.

In conclusion, giblet %, meat %, leg weight %, and breast weight % was increased whereas wings weight %, and back with neck weight % was decreased in Shatavari and vitamin E supplemented group in comparison to control group.

Table-1: Effect of Shatavari and Vitamin E on carcass quality in different groups during winter season

Parameters	Groups					
	T_1	T_2	T_3	T_4	T_5	T_6
Giblet %	$4.50^{a} \pm 0.09$	$4.95^{b} \pm 0.04$	$5.09^{c} \pm 0.02$	$4.89^{b} \pm 0.02$	$5.11^{c} \pm 0.01$	$5.27^{d} \pm 0.01$
Meat %	$62.50^{a} \pm 0.31$	$65.91^{b} \pm 0.17$	$66.46^{c} \pm 0.30$	$65.80^{b} \pm 0.27$	$67.47^{d} \pm 0.09$	$68.66^{e} \pm 0.04$
Leg Weigh t %	$31.22^{a} \pm 0.30$	$32.61^{b} \pm 0.17$	$32.76^{cd} \pm 0.08$	$32.57^{b} \pm 0.10$	$32.62^{bc} \pm 0.03$	$32.84^{d} \pm 0.06$
Wings Weight %	$10.74^{a} \pm 0.26$	$10.76^{a} \pm 0.21$	$11.67^{b} \pm 0.29$	$11.59^{b} \pm 0.06$	$11.70^{bA} \pm 0.17$	$12.67^{c} \pm 0.23$
Breast Weight %	$29.40^{a} \pm 0.12$	$29.95^{b} \pm 0.19$	$29.91^{b} \pm 0.13$	$29.76^{b} \pm 0.23$	$29.79^{b} \pm 0.07$	$29.96^{b} \pm 0.08$
Back With Neck Weight %	$26.71^{d} \pm 0.06$	$25.86^{b} \pm 0.17$	$25.65^{a} \pm 0.27$	$25.97^{b} \pm 0.36$	$25.57^{a} \pm 0.09$	$26.43^{c} \pm 0.23$

T_1, control; T_2, 1% Shatavari supplemented group; T_3, 1.5% Shatavari supplemented group;
T_4, 200 mg/kg feed of Vitamin E supplemented group; T_5, 1% Shatavari Root Powder + 200mg/kg feed of Vitamin E supplemented group;
T_6, 1.5% Shatavari Root Powder + 200 mg/kg feed of Vitamin E supplemented group.
Means with different superscripts in small letters in a row differ significantly ($p < 0.05$).

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REFERENCES

1. Rekhate, D.H.; Smita Ukey, Mangle, L.N.; Deshmukh, B.S. (2010). Effect of dietary supplementation of Shatavari (*Asparagus racemosus* wild) on heamato-biochemical parameters of broilers. *Veterinary World; 2010, 3 :* (6), 280-281.
2. Pedulwar, S.N.; Zanzad, A.A. Choudhari, A.J., Ramteke, B.N.; Deshmukh, G.B. (2007). Effect of dietary supplementation of Shatavari (*Asparagus racemosus*) on broilers. *Indian Journal of Field Veterinarians; 2007 3 :* (1) 28-29.
3. Gershwin, M., Beach R., Hurley, L. (1985). The potent impact of nutritional factors on immune response. *In Nutrition and Immunity.* pp. 1-7. *Academic Press,* New York, NY.
4. Marsh, J.A.; Combs, G.F. Jr.; Whitacre M.E. and Dietert, R.R. (1986). Effect of selenium and vitamin E dietary deficiencies on chick lymphoid organ development. *Proceedings of the Society for Experimental Biology and Medicine; 182:* 425-436.
5. Srivastava, S.B.; Singh, D. P.; Ram Niwas; Paswan, V. K. (2012). Efficacy of indigenous herbal drug on growth performance and biochemical attributes of broiler chicks in the winter season. *Environment and Ecology* 30 (3B):838-840.
6. Yadav, S.P., Yadav G., Yadav, M.P.S. (2013). Effect of concimin feed sup plement on car cass quality or broiler chicks. *Progressive Research; 8 (special) :* 665-666 (2013).