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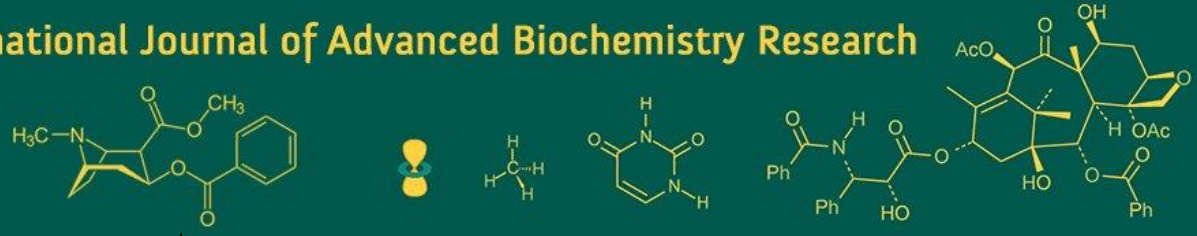

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Carcass characteristics of Dahlem Red Chicken

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Abstract
The carcass characteristics of Dahlem Red chicken were evaluated by sacrificing twenty five birds of males at 3 months of age. The average pre slaughter live weight was 1405.32 ± 34.45 g in cocks slaughtered at 3 months of age and the proportions of dressing percentage, breast, leg, wing, back and neck expressed as percent of live weight were 73.23 ± 0.41, 14.97 ± 0.28, 20.20 ± 0.14, 10.70 ± 0.19 and 19.63 ± 0.31, respectively. Blood, feather, head, heart, liver, gizzard, abdominal fat, bursa and spleen are expressed as percentage of pre slaughter live weight were 4.57 ± 0.37, 8.10 ± 0.47, 2.38 ± 0.05, 0.42 ± 0.01, 2.02 ± 0.04, 2.26 ± 0.08, 0.12 ± 0.04, 0.09 ± 0.01 and 0.20 ± 0.01, respectively. The results of the present study provided base line information about the carcass traits of Dahlem Red chicken reared under farm conditions.

Keywords: Dahlem Red Chicken, carcass characteristics, farm conditions

Introduction
Poultry eggs and meat are inexpensive and highly affordable sources of protein for humans. Among the economically prominent poultry species, chickens are especially valuable as they offer both eggs and protein-rich meat. Carcass characteristics in chickens is important for several reasons. It helps to measure the characteristics of chicken meat such as tenderness, flavor, juiciness and color, which are crucial for consumer acceptance and satisfaction. Understanding slaughter characteristics aids breeders and geneticists in selecting and breeding chickens with desirable traits. Selection of breed, feed quality, management of health and processing techniques can drastically impact the dressing percentage. In a village poultry system, cocks are typically utilized for meat purposes at the age of 12–15 weeks. Meat quality and carcass traits are important indices to measure performance of meat birds and livestock (Rajkumar *et al*. 2016) [9]. The present study was taken up to provide information about the carcass characteristics of Dahlem Red chickens.

Materials and Methods
Location of the study: The experiment was conducted at ICAR-Directorate of Poultry Research, Hyderabad, Telangana, India. Twenty five males were selected randomly from 11th generation reared in the farm conditions. All the birds were vaccinated and dewormed as per the standard schedule. Sacrificed by cervical dislocation for evaluating the carcass traits. The relative weights of blood, feather, head, dressed carcass, breast, legs, wing, back, neck, giblets (gizzard, liver and heart), bursa, spleen and abdominal fat were recorded and expressed as percentage of live weight.
Before slaughter, the birds were starved for 12 hours but provided with ad-libitum water. Their body weight was recorded before slaughter. The birds were slaughtered by Halal method by cutting the jugular vein, bled for 1.5 to 2 minutes and scalding at 55^{o} C for 2 minutes and manually de- feathered to record de feathered weight.
Dressing was conducted by separating the head and shank to record dressed weight. Evisceration was done by removing the esophagus, trachea, and viscera and the eviscerated weight was recorded. The heart, liver and gizzard were then separated and cleaned. Pericardium of heart, gall bladder of liver, and internal layer of gizzard lining were removed before weighing them individually and also weight them together to record giblet weight.

Dressing percentage (%) was computed based on dressed weight to the pre- slaughter live weight. All the carcass parameters except live bodyweight (expressed in grams) were expressed on percentage basis of the live weight of birds.

Statistical analysis

Mean and standard error of slaughter parameters was performed by using SPSS computer software package.

Results and discussion

The pre-slaughter body weight of the males of Dahlem Red chicken was 1405.32 ± 34.45 g. Higher pre-slaughter body weight than the present study at 18 weeks of age in different two-way crosses was reported by Padhi and Chatterjee (2013) [4] and Lower pre-slaughter body weight than present study reported in Kalinga Brown at 18 weeks of age by Bhonsle *et al*., 2019 [1]. The lower body weight of Dahlem Red was justified as it is one of the high brown egg producer.

The mean dressing percentage in the present study was 73.23 ± 0.41. Lower dressing percent than the present study was reported by Padhi *et al.* (2015b) [7], Rajkumar *et al*. (2019) [10], Ullengala *et al*. (2020) [13] and Rajkumar *et al*. (2021) [12]. The higher dressing percent than the present study was reported by Bhonsle *et al*. (2019) [1] and Vasanthi *et al*. (2023) [14].

In the present study, the mean percentage of breast was 14.97 ± 0.28, which was lower than the values reported by Chatterjee *et al.* (2003) [2], Chatterjee *et al*. (2007) [3], Padhi *et al*. (2015b) [7], Padhi *et al*. (2016) [8], Rajkumar *et al*. (2021) [12] amd Vasanthi *et al*. (2023) [14]. The proportion of breast meat was lower in the present study compared to broilers, which are conventionally undergo selection for broader breast (Rajkumar *et al.* 2016) [9]. Lower percentage of breast than the present study was reported by Ullengala *et al*. (2020) [13] in Aseel × PB2 at 12 weeks of age.

The mean percentage of leg recorded in the present study was 20.20 ± 0.14. Higher values than the present study was reported by Chatterjee *et al.* (2003) [2] at 24 weeks of age; Padhi *et al.* (2015b) [7] and Rajkumar *et al*. (2021) [12] at 12 weeks of age; Padhi *et al.* (2016) [8] at 16 weeks of age and Bhonsle *et al*. (2019) [1] at 18 weeks of age. Many authors (Padhi *et al*. 2016, Rajkumar *et al.* 2016, Rajkumar *et al.* 2019) [8, 9, 10] have reported higher proportion of legs and lower proportion of breast meat in different native and crossbred chicken similar to present findings.

The mean percentage of wing was 10.70 ± 0.19 in the present study and was higher than those reported by Chatterjee *et al.* (2003) [2] in Nicobari and Chatterjee *et al.* (2007) [3] in two different Nicobari cross males of 24 weeks of age; Ullengala *et al*. (2020) [13] and Rajkumar *et al*. (2021) [12] at 12 weeks of age; Rajkumar *et al*. (2019) [10] and Rajkumar *et al*. (2020) [11] at 14 weeks of age.

The mean percentage of back and neck was 19.63 ± 0.31 in the present study was lower than those reported by Padhi *et al.* (2015b) [7] at 12 weeks of age, Bhonsle *et al*. (2019) [1] at 18 weeks of age and Rajkumar *et al*. (2019) [10] at 14 weeks of age.

The mean percentage of blood found in the present study was 4.57 ± 0.37. Higher blood percentage than the present study was reported by Padhi *et al.* (2012) [5] in PD1, Vanaraja and control broiler at 8 weeks of age and Padhi and Chatterjee (2013) [4] in PD1 x IWI at 18 weeks of age while lower values than the present study was reported by Padhi *et al.* (2015a) [6] at 12 weeks of age, Padhi *et al.* (2016) [8] at 16 weeks of age and Rajkumar *et al*. (2019) [10] and Rajkumar *et al*. (2020) [11] at 14 weeks of age.

The mean feather percentage in the present study was 8.10 ± 0.47. Lower feather percent than recorded in the present study was reported by Padhi *et al.* (2012) [5] at 8 weeks of age, Padhi and Chatterjee (2013) [4] at 18 weeks of age, Padhi *et al.* (2015a) [6] at 12 weeks of age and Padhi *et al.* (2016) [8] at 14 weeks of age whereas higher feather percent than the present study was reported by Rajkumar *et al*. (2020) [11] at 14 weeks of age, Ullengala *et al*. (2020) [13] at 12 weeks of age and Rajkumar *et al*. (2021) [12] at 12 weeks of age.

The mean percentage of heart recorded in the present study was 0.42 ± 0.01. Higher values than the present study were reported by Chatterjee *et al.* (2007) [3], Rajkumar *et al*. (2019) [10] and Ullengala *et al*. (2020) [13].

The mean percentage of liver recorded in the present study was 2.02 ± 0.04. Higher values than the present study were reported by Vasanthi *et al*. (2023) [14].

The mean percentage of gizzard recorded in the present study was 2.26 ± 0.08. Higher values than the present study were reported by Padhi *et al.* (2016) [8], Rajkumar *et al*. (2020) [11], Ullengala *et al*. (2020) [13], Rajkumar *et al*. (2021) [12] and Vasanthi *et al*. (2023) [14].

The mean percentage of bursa recorded in the present study was 0.09 ± 0.01. Higher values than the present study were reported by Rajkumar *et al*. (2019) [10].

The mean percentage of fat recorded in the present study was 0.12 ± 0.04. Higher values than the present study were reported by Padhi *et al.* (2012) [5], Padhi *et al.* (2015a) [6], Rajkumar *et al*. (2020) [11] and Ullengala *et al*. (2020) [13]. The lower abdominal fat % was desirable in birds used for meat purpose.

The mean percentage of spleen recorded in the present study was 0.20 ± 0.01. Higher values than the present study were reported by Rajkumar *et al*. (2020) [11] in Vanaraja female line at 14 weeks of age.

The variations in the proportion of different carcass traits might be attributable to the breed, type of bird, sex, type of feed, feeding strategies, health management and season etc.

Table 1: Slaughter parameters expressed as percentage of live weight in cocks of Dahlem Red chicken (n=25)

S. No.	Trait	Mean ± SE
1	Live weight	1405.32 ± 34.45
2	Dressing percentage (%)	73.23 ± 0.41
Cut up parts (%)		
1	Breast	14.97 ± 0.28
2	Leg	20.20 ± 0.14
3	Wing	10.70 ± 0.19
4	Back and Neck	19.63 ± 0.31
Others/Offals (%)		
1	Blood	4.57 ± 0.37
2	Feather	8.10 ± 0.47
3	Head	2.38 ± 0.05
4	Spleen	0.20 ± 0.01
5	Fat	0.12 ± 0.04
6	Bursa	0.09 ± 0.01
Giblets (%)		
1	Heart	0.42 ± 0.01
2	Liver	2.02 ± 0.04
3	Gizzard	2.26 ± 0.08

Conclusion

The findings of this study concluded Dahlem Red chickens are an egg-type exotic breed and have a lower body weight, lower abdominal fat in birds usually means a higher yield of lean meat, which enhances meat quality and can improve production efficiency and profitability.

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