SHORT COMMUNICATION

Contribution of Carcass Cuts in Meat Production of Kadaknath, Aseel and Vanraja Breeds of Chicken

Veer Pal Singh* and Vikas Pathak

Department of Livestock Products Technology, U.P. Pt Deen Dayal Upadhyay Veterinary University & Go Anusandhan Sansthan, Mathura, U.P., INDIA

*Corresponding author: VP Singh; Email: vetypsingh@rediffmail.com

Received: 01 Aug., 2016 Revised: 15 Dec., 2016 Accepted: 18 Dec., 2016

ABSTRACT

A comparative study was conducted to find out the differences in contribution of carcass cuts in meat production from indigenous breeds such as Vanraja, Aseel and Kadaknath breeds with respect to a broiler strain, Cobb-400. The primal cuts of Cobb-400 had significantly (P<0.05) higher weight than all indigenous breeds. Among indigenous breeds Aseel exhibited higher weight of all primal cuts except neck while lowest values were recorded in Kadaknath with the exception of wing and breast. The highest weight cut was breast in Cobb-400 and Kadaknath while in Vanraja and Aseel, the maximum values were observed for leg. Neck was recorded as lowest weight cut in all chicken breeds.

Keywords: Cobb-400, Vanraja, Aseel, Kadaknath, carcass cuts, meat

Cross breed broiler strains are having major contribution in chicken meat. However, a group of Indian consumers have acquired a preference for the taste of meat from native chicken. Though the market of meat for native chicken is still confined but growing rapidly in some of the areas of our country. That is because of the consumption of meat of these native breeds is solely dependent on the choice of food habits of the consumers residing in varying regions of the country and they have different mythology (Singh and Pathak, 2016; Kandir and Yardimci, 2015). Kadaknath is a native chicken breed of Madhya Pradesh, popularly known as ‘Kali Masi’ in that region because it gives black flesh. It is well known breed of chicken for adaptability and well tasting black meat. It is also believed that meat of this breed is able to infuse vigour, black colour of Kadaknath is assumed to be mainly due to accumulation of melatonin. Meat of this breed also contains hormones, amino acids and is used for treating women diseases viz. sterility, menoxenic, habitual abortion, blood leucorrhoea, metrorrhagia and sickness after giving birth to offspring and also helps in curing T.B., heart diseases, neurasthenia, children’s osteomalacia etc. Aseel is well known breed for pugnacity, high stamina, majestic gait and dogged fighting qualities. It is rare and encountered in parts of Andhra Pradesh, Uttar Pradesh and Rajasthan. The most popular Aseel varieties are peela (golden red), yarkin (black and red), Nurie (white), kagar (black), chitta (black and white silver), Teekar (brown) and Reza (light red). It is poor in productivity but the breed is well-known for its meat qualities (www.vuatkerala.org). Chatterjee et al. (2007) conducted research on body conformation of Aseel and Kadaknath breed of chicken and found 7.75 cm, 6.89 cm and 70.45 degrees and 9.52 cm, 8.40 cm and 81.65 degrees shank length, keel length and breast angle of Kadaknath and Aseel, respectively. They also stated that shank length, keel length and breast angle were all significantly (P<0.05) higher in Aseel than Kadaknath. A comparative study on production performance of Aseel and Kadaknath was done by Haunshi et al. (2011) in which Aseel breed showed (P < 0.001) higher body weight at different ages; higher shank, radius, and toe lengths at 40 wk of age than did the Kadaknath breed. Vanaraja is a dual purpose, multi-coloured bird for family poultry production evolved at the Project Directorate on Poultry, Hyderabad. It is best suited
chicken breed of Manipur state (Rama Rao et al., 2012; Verma et al., 2015; Singh et al., 2016).

The meat traits based on body weight, growth rate and feed efficiency under intensive as well as backyard farming is available in literature. However, the information relating to contribution of different carcass cuts in meat production in these breeds is almost negligible. The knowledge of carcass cuts and its contribution in meat traits of these breeds may be helpful in formulation of breeding plans for further improvement and economics considerations. So a study was planned to evaluate the contribution of carcass cuts in total meat production in indigenous chicken in respect to a broiler strain, Cobb-400.

Chicks were reared on deep litter system for six weeks before sacrificing. The birds were kept off feed for 12 hours before the actual slaughter, however, ad-libitum drinking water was provided during starvation. The birds were slaughtered after weighing as per Halal procedure followed by manual dressing. Scalding was not performed as skin along with feathers was removed from carcass. The hot weight was recorded immediately after dressing. The dressed carcasses were kept in chiller at 4±2°C for 24 h. The cold carcass weight was recorded after 24 hours followed by fabrication of standard primal cuts. The weight of individual cuts were also recorded and computed with respect to their live weight, and cold carcass weight. The data obtained was subjected to statistical analysis as per method prescribed by Snedecor and Cochran (1994) using SPSS statistics 16 software.

The mean weight values of different chicken breeds for carcass cut up parts viz breast, back, thigh and leg, wing and neck in male, female and pooled sex group are presented in Table 1 to 3. The anova of variance indicated that mean value of breast weight of Cobb-400 was significantly (P<0.05) higher than the values recorded for other breeds irrespective of sex. Among the indigenous breeds, the mean back weight recorded for male birds of Aseel was significantly (P<0.05) higher than mean back weight recorded for Vanraja and Kadaknath, however, the values of later two were found to be comparable. Similar trend was observed in females and pooled sex group.

The back values reported in the study were lower than the back values reported by Mahapatra et al. (1982) in Aseel Kagar and Aseel Peela, Sharma (1995) in Mizoram chicken, Vijh et al. (2005) in miri and Tantia et al. (2006) in Ankaleshwar birds indicating lesser proportion of back in studied native chicken. Cobb-400 had higher back weight than all indigenous chicken breeds which could be due to its fast growing tendency or genetic characteristics. The back weight of indigenous breeds was higher in males than females which are in agreement with the findings of Pathak et al. (2009) and Debata et al. (2012) for adult Vanraja while the reverse trend was observed in Cobb-400. The work reported by Debata et al. (2012) in Black rock and Red Cornish support the findings of the study.

The anova of variance indicated that mean value of leg weight of Cobb-400 was significantly (P<0.05) higher than the values recorded for other breeds irrespective of sex. Among the indigenous breeds, the mean leg weight recorded for male birds of Aseel was significantly (P<0.05) higher than mean leg weight recorded for Vanraja and Kadaknath, however, the values of later two were found to be comparable. Similar trend was observed in females and pooled sex group.

Cobb-400 and Kadaknath carcass were showing relatively higher proportion of breast than other cuts which might be attributed to genetic characteristics of the said breeds (Islam et al., 2002 and Paul et al., 1990). The percent breast weight values were higher in present investigation than as reported by Mahapatra et al. (1982) in Aseel Kagar and Aseel Peela, Sharma (1995) in Mizoram chicken, Vijh et al. (2005) in miri and Tantia et al. (2006) in Ankaleshwar birds. The higher breast weight in males than females is in agreement with reports of Hossain et al. (2012) on full feathered chicken.

The anova of variance indicated that mean value of back weight of Cobb-400 was significantly (P<0.05) higher than the values recorded for other breeds irrespective of sex. Among the indigenous breeds, the mean back weight recorded for male birds of Aseel was significantly (P<0.05) higher than mean back weight recorded for Vanraja and Kadaknath, however, the values of later two were found to be comparable. Similar trend was observed in females and pooled sex group.

The back values reported in the study were lower than the back values reported by Mahapatra et al. (1982) in Aseel Kagar and Aseel Peela, Sharma (1995) in Mizoram chicken, Vijh et al. (2005) in miri and Tantia et al. (2006) in Ankaleshwar birds indicating lesser proportion of back in studied native chicken. Cobb-400 had higher back weight than all indigenous chicken breeds which could be due to its fast growing tendency or genetic characteristics. The back weight of indigenous breeds was higher in males than females which are in agreement with the findings of Pathak et al. (2009) and Debata et al. (2012) for adult Vanraja while the reverse trend was observed in Cobb-400. The work reported by Debata et al. (2012) in Black rock and Red Cornish support the findings of the study.

The anova of variance indicated that mean value of leg weight of Cobb-400 was significantly (P<0.05) higher than the values recorded for other breeds irrespective of sex. Among the indigenous breeds, the mean leg weight recorded for male birds of Aseel was significantly (P<0.05) higher than mean leg weight recorded for Vanraja and Kadaknath, however, the values of later two were found to be comparable. Similar trend was observed in females and pooled sex group.

The leg values reported in the study were higher than the values reported by Mahapatra et al. (1982), Sharma (1995), Jaturasith et al. (2002), Vijh et al. (2005) and Tantia et al. (2006) in indigenous chicken. The leg weight in Cobb-400 was significantly (P<0.05) higher than all indigenous breeds. Males had higher leg weight...
Carcass cuts in chicken meat

than females in both Cobb-400 and indigenous breeds

Debata et al. (2012) observed same trend while comparing

the growth rate of commercial breeds like Black rock and
Red Cornish with Vanraja.

The anova of variance indicated that mean values of

wing weight in Cobb-400 males were found significantly

(P<0.05) higher than all the indigenous chicken breeds

while no significant difference was observed in average

wing weight among indigenous breeds. The similar trend

was observed in females and pooled sex group.

The wing weight values reported in the study showed

similar values as reported by Mahapatra et al. (1982)

in Aseel Kagar and Aseel Peela, Sharma (1995) in Mizoram

chicken, Jaturasith et al. (2002) in Thai native chicken,
Vijh et al. (2005) in Miri. The higher wing weight values

in Cobb-400 and Aseel indicated better muscle growth in

these breeds. Males had higher wing weight than females

in all the studied breeds. Similar results were obtained

in the study conducted by Debata et al. (2012) on Black
rock, Red Cornish and Vanraja. Pathak et al. (2009) also
observed same trend in their study on Vanraja.

The anova of variance indicated that mean values of

neck weight in Cobb-400 males were found significantly

(P<0.05) higher than all the indigenous chicken breeds

while no significant difference was observed in average

neck weight among indigenous breeds. The similar trend

was observed in females and pooled sex group.

The neck weight values reported in the study showed

lower values as reported by Mahapatra et al. (1982),
The neck weight in Cobb-400 was highest among all
studies breeds while Vanraja had higher neck weight value
among indigenous breeds. The higher neck weight in
Vanraja compared to Black rock was reported by Debata
et al. (2012). The neck weight in females was higher than
males in all chicken breeds except Vanraja and the finding
was in agreement of the reports published by Hossain
et al. (2012) for commercial broilers.

Table 1: Carcass cut up part weight values (g) in various groups of different chicken breeds

(Mean±SE)

<table>
<thead>
<tr>
<th>Carcass cuts</th>
<th>Chicken breeds/strain</th>
<th>Cobb-400</th>
<th>Vanraja</th>
<th>Aseel</th>
<th>Kadaknath</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Pooled sex</td>
<td>Male</td>
</tr>
<tr>
<td>Breast</td>
<td></td>
<td>166.89±5.94</td>
<td>157.36±5.74</td>
<td>162.13±4.19</td>
<td>83.36±1.88</td>
</tr>
<tr>
<td>Back</td>
<td></td>
<td>83.87±4.27</td>
<td>89.35±3.93</td>
<td>86.61±2.89</td>
<td>45.30±3.04</td>
</tr>
<tr>
<td>Leg</td>
<td></td>
<td>162.21±5.74</td>
<td>156.92±5.49</td>
<td>159.56±3.87</td>
<td>69.95±3.09</td>
</tr>
<tr>
<td>Wing</td>
<td></td>
<td>64.84±5.11</td>
<td>63.35±4.77</td>
<td>64.09±3.34</td>
<td>30.29±1.85</td>
</tr>
<tr>
<td>Neck</td>
<td></td>
<td>38.20±3.20</td>
<td>39.03±2.65</td>
<td>38.62±1.91</td>
<td>24.63±2.70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>516.01±11.46</td>
<td>506.01±11.50</td>
<td>511.01±7.88</td>
<td>234.88±6.11</td>
</tr>
</tbody>
</table>
ACKNOWLEDGMENTS

Authors are highly thankful to the Hon’ble Vice-chancellor of the university to provide the requisite amount and facility to carry out the research work.

REFERENCES


---

**Fig. 1:** Percent carcass cuts of various breeds/strain
Carcass cuts in chicken meat


