EFFECT OF SEXUAL DIMORPHISM ON CERTAIN CARCASS TRAITS OF ARANI (DESI) DUCKS OF TAMIL NADU

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Introduction

In alternate poultry farming, duck rearing plays a vital role and is being practiced in rural parts of India especially Tamil Nadu. It is practiced as traditional system by the rural farmers. The local or indigenous ducks constitute about 92 per cent of the duck population and are mainly distributed in the paddy cultivating areas. The extensive watershed areas like ponds, lakes and rivers in Tamil Nadu provide excellent natural habitats and forage centers for ducks. In northern districts of the state, the local duck variety of Arani is very popular and reared under backyard, extensive and range system. Arani ducks are primarily reared for egg production, and its meat is also very popular among the rural farmers. However, no literature is available on the influence of sex on carcass traits of these ducks. Therefore, the present study was conducted to study the influence of sex on different edible and inedible carcass in range condition of Tamil Nadu.

Materials and methods

The present study was conducted with 12 numbers (male and female – six each) of one year old Arani ducks at Institute of Food and Dairy Technology (IFDT), Koduvalli, Chennai 52. The birds were procured from near by village. The birds were slaughtered and processed as per the standard procedures (Sahoo and Panda, 1983). Feathers were removed manually. Live weight, dressed weight, eviscerated weight, ready-to-cook weight, weight of blood, feather, inedible viscera, giblet, neck, breast, wing, back, thighs and drumsticks were recorded. Per cent yields of different edible and inedible component part of Arani duck carcasses were expressed on live weight basis. Different cut parts were expressed on eviscerated weight basis. The data obtained were analyzed statistically (Snedecor and Cochran, 1989).

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Results and Discussion

The mean live weight and per cent yield of different edible and inedible parts of one year old Arani duck were presented in the Table. The mean live weight was significantly (P<0.05) higher in female (1128.00g) than in male (963.33g). In contrast to the present findings, Sapatco et al.(2009) at six months of age Chara-Chemballi drakes of(1515.25g) had significantly (P<0.05) higher body weight as compared to ducks (1385.16g), and the same trend was also noticed Mahanta and Sapatco (2010) reported in 30 weeks old Cina hang ducks of 1823.33g and drake of 2899.17g. The mean per cent eviscerated and ready-to-cook weight of female (62.95 and 71.65) were significantly (P<0.05) higher than male (58.83 and 67.24). This present study eviscerated and ready-to-cook weight was slightly higher than the values of Sangilimadan and Narayanankutty (2008) of two year old indigenous ducks of Kerala (60.87 and 70.94 per cent). The mean per cent giblet yield of present study was (8.70) in female and (8.41) in male did not show any significant difference between the sexes. This finding is similar to Sapatco et al. (loc.cit) of 8.12 and 8.43 per cent in male and females. The mean per cent blood loss and feather loss of male and female of (4.84 and 7.29) and (4.54 and 7.10) did not differ significantly between the sexes. This value is in close agreement with Sangilimadan and Narayanankutty (loc.cit) of 4.36 and 7.76 per cent for Indigenous ducks of Kerala. Sahoo and
Panda (loc.cit) reported that mean per cent loss of blood and feather ranges from 5.03 to 6.46 and 3.98 to 7.59. The mean per cent total loss (blood, feather and inedible offals) were significantly (P<0.05) higher in male (31.79) than females (29.01). This value is in close agreement with Sangilimadan and Narayanankutty et al. (loc.cit) of 32.31 per cent for ducks of Kerala and with Sahoo and Panda (loc.cit) of 32.31 to 39.63 per cent. The meat to bone ratio was significantly (P<0.05) higher in female (2.38) than male (2.17). A similar finding was reported by Sangilimadan and Narayanankutty (loc.cit) (2.47 per cent) for Kerala ducks and Ramboli (1983) of 2.40 per cent for 70 days old ducks.

The major cut-up parts of breast, back, thigh, drumstick and neck did not show any significant differences between the sexes. The reported value of percent breast and back yield were higher in female than in male and the values were 23.73, 20.58 and 27.71, 24.98 per cent for the same. This finding is also in alignment with that of Sapcota et al. (loc.cit) of 23.73 and 21.33 per cent for breast and back yield for Chara-Chambelli drake, and Mahanda et al. (2000) for Patti ducks of Assam. Thigh, drumstick and neck yields reported in the present study of male were slightly higher than (12.06, 14.13, and 7.09 per cent) females of 10.27, 14.02, and 6.15 per cent. These observation corroborate with the findings of Sapcota et al. (loc.cit) for Chara-Chambelli duck of 4.54, 6.97 and 5.34 per cent. The mean per cent wing yield of male (16.20) was significantly (P<0.05) higher than female (14.18). In contrast to the present findings, Sapcota et al. (loc.cit) reported of 10.48 and 11.41 per cent wing yield for male and female in six months old Chara-Chambelli ducks of Assam, Mahanda and Sapcota (loc.cit) of 10.69 and 11.21 per cent for Cina hanh drake and ducks at 30 weeks age.

Mean (±SE) of Carcass traits of one year old Arani (Desi) ducks

<table>
<thead>
<tr>
<th>Trait</th>
<th>Male (n=6)</th>
<th>Female (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live weight (gm)*</td>
<td>963.3±38.78</td>
<td>1128.0±40.45</td>
</tr>
<tr>
<td>Dressed weight (%)NS</td>
<td>87.87±0.23</td>
<td>88.35±0.37</td>
</tr>
<tr>
<td>Eviscerated weight (%)*)</td>
<td>58.83±0.35</td>
<td>62.95±1.54</td>
</tr>
<tr>
<td>Giblet weight (%)NS</td>
<td>8.41±0.45</td>
<td>8.70±0.33</td>
</tr>
<tr>
<td>Ready-to-cook weight (%)*)</td>
<td>67.24±0.36</td>
<td>71.65±1.45</td>
</tr>
<tr>
<td>Blood loss (%)NS</td>
<td>4.84±0.32</td>
<td>4.54±0.27</td>
</tr>
<tr>
<td>Feather loss (%)NS</td>
<td>7.29±0.13</td>
<td>7.10±0.14</td>
</tr>
<tr>
<td>Total loss (%)*)</td>
<td>31.79±0.49</td>
<td>29.01±0.86</td>
</tr>
<tr>
<td>Meat : Bone ratio*</td>
<td>2.17±0.05</td>
<td>2.38±0.07</td>
</tr>
</tbody>
</table>

### Cut-up-parts

<table>
<thead>
<tr>
<th>Trait</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast (%)NS</td>
<td>20.58±0.47</td>
<td>23.73±1.71</td>
</tr>
<tr>
<td>Back (%)NS</td>
<td>24.98±0.23</td>
<td>27.71±1.57</td>
</tr>
<tr>
<td>Thigh (%)NS</td>
<td>12.06±0.04</td>
<td>10.27±1.05</td>
</tr>
<tr>
<td>Drumstick (%)NS</td>
<td>14.13±0.22</td>
<td>14.02±0.63</td>
</tr>
<tr>
<td>Wing (%)*</td>
<td>16.20±0.40a</td>
<td>14.18±0.56b</td>
</tr>
<tr>
<td>Neck (%)</td>
<td>7.09±0.02</td>
<td>6.15±0.59</td>
</tr>
</tbody>
</table>

* - Significant (P<0.05), NS-Not Significant

**Summary**

Arani duck is an indigenous duck stock available in the northern district of Tamilnadu. They were evaluated for carcass traits in terms of per cent edible and inedible in female and male ducks at one year of age. The live weight, eviscerated weight, ready to cook weight and meat to bone ratio were significantly (P<0.05) higher in female. The dressed weight, giblet weight, blood loss and feather loss showed no significant difference between the sexes. Where as, total loss of drake was significantly

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healing with practical implications for trauma and surgical patients (Uruakpa, et al., 2002). IGF-1, found in Colostrums stimulates bone and muscle growth and nerve regeneration.

**Proline Rich Peptides (PRP’s):** PRP’s promote better functioning of T-lymphocytes, help produce cytokines, stimulate the activity of natural killer cells (NK cells) and also stimulate and modulate many other immunological functions. PRP’s increase the permeability of blood vessels in the skin, resulting in the improved uptake of nutrients into the skin which results in a healthier skin.

Shing et al., 2009 reported that commercially available bovine colostrum protein concentrate (CPC) stimulates cytokine production by human peripheral blood mononuclear cells (PBMCs) in vitro. Alterations in cytokine secretion may be a potential mechanism for reported benefits associated with supplementation.

**Nucleosides:** Dietary nucleotides present in cow colostrums, have a number of beneficial functions. They support immune modulation, and enhance iron absorption in the digestive tract as well as help in the desaturation of fats, making them easier to digest.

**Hormones:** Bovine milk and colostrum contain a large number of hormones from either steroidic or peptidic origin. The main categories to which these molecules belong are:
- **Gonadal** -estrogens, progesterone, androgens; adrenal-glucocorticoids;
- **Pituitary** - prolactin, growth hormone and hypothalamic hormones- GRH, LH-RH, TRH (Jouan et al., 2006).

Other molecules, such as proteins related to the parathyroid hormone, insulin, somatostatin, calcitonin, bombesin, erythropoietin and melatonin, are also of interest. Bovine Colostrum contains high levels of growth factors that promote normal cell growth and DNA synthesis.

**Conclusion:** Bovine species is a universal donor for colostrums and produces more colostrums than any other domestic animal and can be obtained humanly. This natural source of beneficial nutrient package containing most of the immune and growth factors necessary for life should further be explored for management of health related problems.

**References**


1. M.VSc Scholar (LPM), 2. Associate Professor & Head (LPM) and 3. Associate Professor & Head (VPP)


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(P<0.05) higher than ducks. Among the different cut-up parts of breast and back yield revealed no significant difference between sexes. Thigh, drumstick and neck did not show significant difference, but the per cent yield of these parts is slightly higher in male than female.

**References**


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