

Comparison of Meat Quality Traits of Muscovy Duck Reared Under Different Management Systems

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Muscovy duck is a waterfowl commonly raised for meat production. Their carcass is leaner and has good meat qualities making it more preferable to the consumers. However, scientific literature on quality traits of their meat is not available in local context. Hence, this study was performed to compare the meat quality traits of Muscovy duck reared under extensive and semi-intensive systems. Nine female birds from each management system were randomly selected and slaughtered at 18 weeks of age. Meat samples from both breast and leg meat were analyzed for physicochemical (color, pH, water holding capacity [WHC], cooking loss, proximate analysis) and sensory properties. Sensory evaluation was conducted for grilled meat using a 7-point hedonic scale and 30 untrained panelists. Results revealed that the birds reared under semi-intensive system had significantly ($p < 0.05$) higher live weight (1,966.7 \pm 216.0 g) and breast weight (444.9 \pm 33.1 g) than extensively reared birds. Meat from semi-intensively reared Muscovy ducks showed a higher redness ($a^* - 14.42$) than that from birds reared under extensive system ($p < 0.05$). However, farming system had no significant effect ($p > 0.05$) on lightness (L^*) of Muscovy duck meat. Higher crude fat content, WHC and low pH were reported in semi-intensively reared Muscovy duck meat compared to those in extensively reared Muscovy duck meat. In comparison of meat cut, breast meat had a significantly higher lightness ($L^* - 50.03$) value while leg meat showed higher redness ($a^* - 12.61$) and pH (6.48) values. Cooking loss and ash content were not affected by management system or type of meat cut ($p > 0.05$). Results of sensory analysis revealed that Muscovy duck meat from extensive management system had higher scores for taste, odour, flavour, juiciness, tenderness, and overall acceptability, irrespective of meat cut ($p < 0.05$). In conclusion, meat quality traits of Muscovy duck were affected by both management system and meat cut.

Keywords: Muscovy duck, Extensive, Semi-intensive, Meat quality traits, Sensory