

Carcass characteristics and meat quality of duck from conventional and organic rearing systems

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Duck meat has a high nutritional value. Conventionally raised duck meat is available year-round in standard quality, is affordable and popular among consumers. Organically raised duck meat is perceived as a healthy food without residues of agrochemicals or drugs, yet consumer interest in this meat is declining, to which organic farms have responded in recent years by reducing the number of ducks included in the breeding. The question remains whether, in addition to the higher price and poorer commercial availability of ducks from organic farms, there are other scientifically based reasons contributing to the decreasing interest of consumers in this healthy meat. The study aim to analyzing carcasses of farmed (conventional and organic) ducks and determining differences in selected parameters of slaughter yield and chemical composition of duck meat, which could help to better understand the changes that are published for current trends in duck meat production in the Czech Republic.

MATERIAL AND METHODS

Sampling:

The carcasses of ducks which are used in study were from:

1) conventional breeding: *Anas platyrhynchos domesticus*, Cherry Valley (fresh without offal, quality class A, calibration 2300 g), 24 pieces, breeding and slaughter in the Czech Republic, fattening period approx. 45 days, special feed mixture, without the use of animal meal or energy concentrates;

2) organic farming: Domestic duck *Anas platyrhynchos domesticus*, White Pekin (fresh with offal, quality class A, uncalibrated), 24 pieces, breeding and slaughter in the Czech Republic, fattening period approx. 7 months, feed mixture Bio BR1 and BR2 (Mikrop Čebín a.s., Čebín 416, 664 23 Čebín, Czech Republic), pasture, own mixture of oats and hybrid cereals triticale.

Aanalysis:

The weight of the carcass with skin (without feathers, head, legs and internal organs) was monitored. The duck carcasses was divided into parts (breast, thigh, wing, skeleton) and weighed then its yield were determined. Raw lard samples were collected for fatty acid profile determination. The obtained parts were homogenized and immediately used for chemical composition determination including of dry matter, total protein, collagen, total fat and ash. Statistically significant differences were performed at levels of $\alpha = 0.05$ (P < 0.05).



RESULTS AND DISCUSSION

Figures 1-8. quantity and quality parameters of duck meat from organic and conventional rearing systems

Results of work are shown in the figures no. 1-8. There were no statistically significant differences between their carcass weight and % yield. The weight of breast

muscle was higher in both duck rearing types compared to thigh muscles. The differences were found in thigh and wing, which in conventionally reared ducks weighed and yielded higher significantly (P < 0.05). Broiler ducks from conventional farms had very well-fleshed breasts and thighs and, paradoxically, better developed wings compared to organic ducks. On the contrary was observed in the skeleton portion, were weighed and yield significantly (P < 0.05) higher in organic ducks. Regarding the nutritionally and commercially most valued parts (breast, thigh), no statistically significant (p < 0.05) difference was found between chemical composition contents (dry matter, protein, fat and ash) of both types of ducks. Dry matter, protein, fat and ash content in the wings of organic ducks were higher significantly (P > 0.05) than in conventionally rearing ducks. Quantitative differences were found in the content of individual groups of fatty acids including of MUFA and PUFA. The fat of organic ducks contained higher (P < 0.05) MUFA, whereas PUFA contained were lower significantly (P < 0.05) than conventional ducks. Saturated fatty acids can have a negative impact on consumer health, while monounsaturated fatty acids (MUFA) and PUFAs are considered to have a positive effect on health (Banaszak et al., 2020).

CONCLUSION

Quantity and quality properties of duck meat from organic and conventional rearing system were evaluated in the study. Main carcasses portions including breast, thigh and wings of conventional ducks were yielded significantly higher ducks from organic rearing system. Economically, this gives priority to conventional ducks by the consumer. Significant differences of chemical composition between both groups of ducks were observed in meat of wings in contrast to breast and thigh which did not show such differences.





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