

A study on the influence of ageing upon the quality of the pigeon meat

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Abstract

The meat represents the principal product obtained from pigeon and due to its dietetic qualities it is recommended to persons of all ages. It has a high nutritional value a low fat content and a high digestibility being superior through its chemical composition to other types of meat from other species. The experiments lead on the three types of meat respectively from a 3 weeks pigeon, 6 weeks pigeon and 8 weeks pigeon have underlined the fact that there are differences between the three types according to the age, gender and species.

Keywords: pigeon, meat, dietary foods

1. Introduction

The raising of meat pigeons in some countries such as USA, France, Hungary represents a highly appreciated and of great perspective work for to obtain specimens whose meat has a great nutritional value.

Taking on account the purpose of their, often we classify the pigeon species as it follows: passenger pigeons, ornamental pigeons and meat pigeons. But, such a classification is not always real or proper due to the fact that the pigeon distribution in different species is not made on the basis of their aptitudes but on the basis of their morphological characteristics. For to proceed correctly there must be taken into account as decisive the objectives of the selection applied for a certain species. That is way those who will deal with the improvement of the meat species, have to pay special attention not only to the productive characteristics but also to the external ones. These species are ment to ensure the selected genetic material necessary for the production of pigeon meat.

Nowadays when for the mankind the consumption of heavy, fat meats became health threatening the place of these products has gradually been taken by the meat rich in proteins, low in lipids, fine structured, easily digestible such as the poultry meat. A high place is occupied by the pigeon meat that is very tasty and has a high biological value. (Nicolau Virginia, 1986).

The pigeon meat represents not only a dietetic meat (recommended for post operatory diets or in general for the clinical cases that require a special diet) but also a significant economical production with a high proteic level, low fat quantity and highly digestible (Vancea I., 1986).

The consumers prefer the young pigeons (between 25-30 days old, when their weight is of approximately 400-500gr) these ones having an excellent meat, easily digestible, very tasty and rich in nutrients. The maintenance in the farm of small meat pigeons older than a month from hatching is not profitable.

The adult pigeons meat that can feed themselves is constituted by dry fibers of

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dark colour. In this case for the pigeon if we do not apply the stuff feeding it will not gain weight. As other poultry the pigeons can be fattened by stuff feeding the process resulting in the obtaining of a high quality meat almost equal to that of the young pigeons.

The meat of fattened pigeons has a bright yellow colour in comparison with the dark coloured meat of the slim pigeons. If the edible parts of the fattened pigeons surpasses 70% that signifies that it becomes tastier. After the stuffing even the meat of the old pigeons can be easily fried or boiled.

The body weight increases along with their ageing reaching the levels specific for the species only when the proper conditions are ensured for the pigeons. If the young pigeons are butchered before 8 weeks their dry meat level will be higher and the ratio meat/ bones lower. That is the explanation for the cases when even if the same raising conditions are applied there have been noticed big differences for pigeons of different ages these facts being comparable with the human cases when some people have more obvious fattening tendencies than others.

2. Materials and Method

The meat represents a basic diet source in the human diet. Due to its balanced chemical composition in substances with high biological value (complete proteins, fats, mineral substances and vitamins), its high digestibility and dietary potential the meat represents a vital product for the human diet (Banu C., 2000).

Naturally, the meat quantity obtained depends on the poultry species referred to; for eg. In the case of turkey and goose there can be obtained weights of 18-20kg, at chicken and ducks weights of 2-5kg and at pigeons weights of 0.8-1.2kg. There are also differences between species regarding the efficiency value at the butchering and regarding the quality of meat.

The capacity of meat formation and fat disposal in tissues varies significantly between species but with differences even within the same species. Due to this fact, in the same raising conditions there have been noticed big differences between the species, differences similar to those that exist for the human race.

The poultry meat can be of white colour (the breast) and of red colour (the legs). In order to establish the colour of the chicken breast there is a standard scale for its quality appreciation and usually for this it's used a chromatometre Minolta CR300.

Regarding the physical traits of meat a special interest is given by the strength of the muscle fiber, strength that can be appreciated with the equipment Warner-Bratzler, equipment which allows the testing for resistance at the cutting of the muscle.

The capacity of fat deposition at broiler is influenced by various factors such as: the species, fodder quality and quantity, the system of raising, the environmental temperature, the age, the gender etc.

In the case of individuals with a rapid growth rate there has been noticed an intensification of internal fat deposition this intensity starting decreasing after the age of 19 days when the muscle mass formation starts to intensify. The thickness of the fat layer on the two extremes of the abdomen is different but there are direct links between the sum of the extremes and the abdomen fat quantity, fact that allows the applying of the selection for to reduce the fat quantity of the shell.

The determination of the fat content. The Soxhlet method applied according to STASS no. The principle of the method

The fat from the experimental sample is extracted until dry with organic solvents and after the extraction solvent's removal it is weighed and expressed percent. For to ensure the complete extraction, the sample undergoes firstly a moderate thermal treatment through which the destruction of the fat cells membrane is achieved.

The determination of the total mineral substances (ash) according to STASS no.

The meat is a rich source of mineral substances such as: iron, sodium, potassium. Calcium is to be found in meat in lower quantities.

The phosphorus, sulfur and chlorine are also to be found in high quantities fact due to which the meat is acidified. The other mineral substances: cobalt, aluminum, cooper, manganese, zinc, magnesium are to be found in low quantities but they play an important role for the human and animal body.

The principle of the method. The total mineral substances (ash) represent the residue obtained after the sample's burning at $525 \pm 250\text{C}$ until it reaches a constant weight

Experiments. In a clean, dry and scaled porcelain melting pot there are weighed at analytical balance approximately 5g of experimental product.

The sample is dehydrated in the oven at a temperature of 103°C (for to obtain a higher working speed the temperature of 125°C is preferred), and then it undergoes a burning at a gaseous bulb flame on a asbestos gauze or chamotte triangle until carbonization.

For the products that have a higher fat content, the burning operation is the most difficult because during burning there can appear losses through splashing. For to avoid this inconvenient the gaseous bulb will be handled in such way during the first step of the burning that it's flame will be projected on the walls of the melting pot through circular slow motions around it .

If there is observed a splashing or foaming-over rising tendency the flame must be projected from up side down side towards in the opening of the melting pot and must be kept like this until the abnormal phenomena is completely gone.

The heating on the side walls is done again afterwards. It takes a little bit of skill but with it the carbonization process can be achieved in 10-15 minutes. If the process is correctly performed the content of the

melting pot has to look like a spongy coal that does not over pass 2/3 of the height of the melting pot and does not over rise or splash at continuous heating. The content of the melting pot may catch fire towards the end of the carbonization process. In this case the gaseous bulb flame is withdrawn and the slow burning is left to spot on its own. After these the reheating can be applied again.

When the carbonization process is finished the melting pot is introduced in the incineration oven set at $525+ 25^{\circ}\text{C}$ and it is kept there continuously for 16-18 hours (the oven can be left plugged over night).

3. Results and Discussion

The fat content of the experimental sample, calculated percent can be found by applying the following formula:

$$\text{Fat \%} = \frac{m}{m_1} 100 ; \text{ in which:}$$

m = the quantity of extracted fat, in g.

This can be deduced from the difference between the weigh of the extracted fat balloon after drying and the weight of the empty balloon (the scale). m_1 = the quantity of the experimental for to determine the fat content there have been taken for the experimental study 3 samples of pigeon meat as it follows:

- *The fat content for a 3 weeks pigeon (P1)*

$$\text{Fat \%} = \frac{m}{m_1} 100 = \frac{0.05}{5} \cdot 100 = 1,0$$

- *The fat content for a 6 weeks pigeon (P2):*

$$\text{Fat \%} = \frac{m}{m_1} 100 = \frac{0.10}{5} \cdot 100 = 2,0$$

- *The fat content for a 8 weeks pigeon (P3):*

$$\text{Fat \%} = \frac{m}{m_1} 100 = \frac{0.12}{5} \cdot 100 = 2.4$$

The fat content from the meat play san important role in the defining of its characteristics. In the experiments lead on the three types of meat we observed a relatively lower fat content in comparison with other poultry species. This content varies according to the age of the pigeon

starting with 1.0% at the age of three weeks and arriving at 2.4% at the age of 8 weeks.

The determination of the total mineral substances (ash) :

- The ash content at a pigeon of 3 weeks (P1). The ash content $t = 15-10.599 = 4.401\text{g}$.
- The ash content at a pigeon of 6 weeks (P2); The ash content $= 15-10.597 = 4.403\text{g}$
- The ash content at a pigeon of 8 weeks (P3); The ash content $= 15-10.595 = 4.405\text{g}$

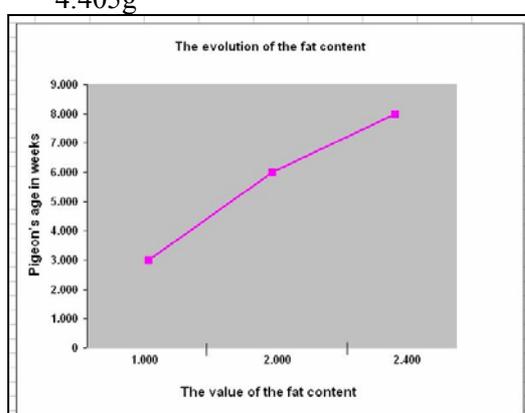


Figure 1. The evolution of the fat content

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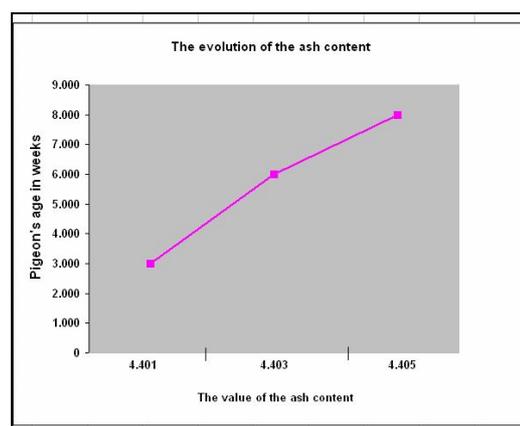


Figure 2. The evolution of the ash content

4. Conclusion

The meat represents the principal product obtained from this species of birds and due to its dietetic qualities it is recommended to persons of all ages. It has a high nutritional value a low fat content and a high digestibility being superior through its chemical composition to other types of meat from other species.

The experiments lead on the three types of meat respectively from a 3 weeks pigeon, 6 weeks pigeon and 8 weeks pigeon have underlined the fact that there are differences between the three types according to the age, gender and species.

As a result of the experiment it has been noticed the fact that the pigeon meat can be consumed without any restrictions because it is one of the best meats from the compositional point of view having a low fat content and being very dietetic. In comparison with the chicken meat it is far healthier just because its low fat content and relative humidity.

The pigeon's body weight increases along with the age reaching the values specific for the species when the proper raising conditions are ensured. If the young pigeons are butchered before 8 weeks the dry meat level will be higher and the ratio meat/ bones lower. Giuseppe Zanoni (Avicultură, 1972) shows that the advantages of raising pigeons are to be found in the fact that this business can be started with small amounts of money. In comparison with other poultry the pigeon

needs smaller environments for growing and it has a better cold and hot weather resistance being less receptive to the viral infections. Also the young pigeons are ready for consumption at 4 weeks and the reproducing pair can be kept in the farm for 5-6 years.

Intensification of internal fat deposition this intensity starting decreasing after the age of 19 days when the muscle mass formation starts to intensify. The thickness of the fat layer on the two extremes of the abdomen is different but there are direct links between the sum of the extremes and the abdomen fat quantity, fact that allows the applying of the selection for to reduce the fat quantity of the shell.

The quantity of abdominal fat is moderately linked (0.54) with the lipids content and negatively linked (-0.13) with the activity of the lipo proteic lipases. The selection of the individuals that don't have a tendency towards fat deposition is made at the level of pure line breeds through the determination of the serum triglycerides concentration due to the fact that there are positive links between these and the internal fat deposition.

There are also positive links between the thickness of the abdominal fat and the chemical composition of the shell. By intercrossing breeds with a high percent of abdominal fat with those having a low

The capacity of fat deposition at broiler is influenced by various factors such as: the species, fodder quality and quantity, the system of raising, the environmental temperature, the age, the gender etc.

In the case of individuals with a rapid growth rate there has been underlined an i percent there are obtained individuals at which the reduction of the abdominal fat compared to their entire weigh is significant.

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