

THE QUALITY OF MEAT TO DIFFERENT TYPE MANGALITSA BREEDS'S

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Abstract

Mangalitsa is a pig breed specialized for fat, which was bred in Romania in large herds until the 1950s. Through the quality of meat from this breed, for several years there has been a growing interest of farmers and consumers for this breed. The aim of this study is to make a comparison between the qualities of meat obtained from two varieties of the Mangalitsa breed: red variety and blonde variety. The results show insignificant differences on slaughter yield: 72.12% to 71.4% for the blonde and red variety. Regarding the chemical composition of meat, results determined the best values for the blonde type compared with the red type: water - 57.42% vs 57.11%; protein 21.72% vs 21.34%; cholesterol 48.14 mg / 100g vs 48.78 mg / 100g

Key words: Mangalitsa, meat quality, cholesterol

INTRODUCTION

Nutrition plays an important role in determining the health of a country's population, but the food needs to first be put through scientific and rational tests.

The nutritional value of meat is assessed either by biological tests on animals, or by chemical and mathematical methods. Unfortunately, lately the media presented it more subjectively, to discredit the role of animal products produced in conventional technological systems.

In a paper published in 2009, Joop de Boer et al., indicated that consumer preferences for meat and meat products of organic or free range type are rather influenced by the culinary education received, social position and a special knowledge of the possible benefits that may follow the consumption of healthy food.

Quality products are all traits of values, expressing the degree to which they meet social needs, according to technical and economic parameters, aesthetics, the usefulness and economic efficiency in operation, ie. consumption [2].

Meat quality is influenced by many factors and may be assessed through several indicators. These indicators are influenced by species, breed, sex, age, state of fattening, and even individuals [5].

Meat quality in pigs is assessed through multiple determinations of chemical, physical and organoleptic properties. The meat (soft tissue) is formed from water and dry matter. The dry substance concentrates all the nutritional value, so the meat quality is defined primarily by the water / solids. A good report of quality meat should not be greater than 3/1 [1].

Mangalitsa is an old breed, specializes in the production of fat, formed in the Balkans, which was operated in Romania in large herds until 1950. Although in the past, there were four varieties of color, the breed currently has three color varieties: Blonde (the largest), Red (formed by crossing the breed Hungarian Szalontai and breed Mangalitsa, blonde variety) and Swallow Bellied (the back and flanks are black, the belly, chest and goiter are white or yellowish, made by crossing Mangalitsa, blonde variety with Szerémség breed).

In Romania, research on Mangalitsa breed are few. Most ([5], [8], [11]) refer to the reproductive potential of the breed and

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genetic characterization. They are very few papers that relate to the quality of meat of the Mangalitsa breed ([9], [10]).

Due to the special qualities of the meat from this breed, for several years there has been a growing interest of farmers and consumers for this race. The aim of this study is to make a comparison between the quality of meat obtained from two varieties of the Mangalitsa breed: red and respectively blonde.

MATERIAL AND METHOD

The research has been done on 30 individuals, barrows (male pig castrated) and sows of which 15 were blonde and 15 red. The pigs came from farms across Romania, weighing approximately 105 kg. In the abattoir, the live weight and fresh carcass weight for each individual was established. Based on these data their slaughter yield was calculated. The thickness of the dorsal fat,

the loin eye thickness of the Longissimus dorsi and the meat percentage of the carcass was also measured in the abattoir.

For the chemical analysis samples from the Longissimus dorsi muscles have been collected to determine the water, protein, fat, ash and cholesterol percentages. The recorded data was analysed and processed using ANOVA test.

RESULTS AND DISCUSSIONS

The Mangalitsa subjects that were used in the experiment were slaughtered at approximately 12 months old with an estimated weight of 105 kg. For a more accurate characterization of the slaughter attributes, the 30 subjects were grouped in 2 lots, based on color variety, each lot had 15 individuals (barrows and sows).

The results concerning the slaughter performances are presented in Table 1.

Table 1 Slaughter performances of the Mangalitsa breed

Lots	No.	Live weight (kg)	Carcass weight (kg)	Fresh carcass yield (%)
Red Mangalitsa	15	105.6	75.39	71.40
Blonde Mangalitsa	15	107.2	77.31	72.12
Significance of differences	-	n.s.	s.	n.s.

Analyzing the data from Table 1 we can notice that the medium live weight of the 2 experimental lots is almost 105.6 kg for lot L1 red variety and 107.2 kg for lot L2 blonde variety.

Concerning the medium weight of the carcasses, these had different results registering a value of 75.39 kg for L1 and 77.31 kg for L2; between lots a significant statistical difference has been established.

The slaughtering yield had close values for the two lots, 71.40% for L1 and 72.12% for L2.

The data obtained concerning the slaughtering yield from this experiment have highlighted similar values with the ones presented in specialty literature.

For a more complete image of the quality of the Mangalitsa carcasses, measurements have been taken from the carcasses of the subjects used in this study (Table 2).

Table 2 Carcass quality

Lots	No.	Back fat thickness (mm)	Muscle thickness (mm)	Lean meat (%)
Red Mangalitsa	15	47.2	31.4	36.89
Blonde Mangalitsa	15	46.7	31.2	37.25
Significance of differences	-	n.s	n.s	n.s

The thickness of the dorsal fat was 47.2 mm for L1 and 46.7 mm for L2, no significant differences being registered

between lots. The 5 cm of thickness, on both lots is a characteristic of the breeds raised for

their fat, demonstrating the potential of the Mangalitsa breed for this type of production.

From the data presented in Table 2, both lots show that the Mangalitsa is a typical high fat percentage breed, its carcass containing approximately 37% meat (36.89% for the red variety and 37.25% for blonde) and approximately 63% fat, confirming the data

found in literature which shows this breed has a carcass meat percentage of 30-35% and a 65-70% fat [3].

✓ Determining the chemical composition of the Mangalitsa breed was done on the Longissimus dorsi muscle, the results are shown in Table 3.

Table 3 The chemical composition of Longissimus Dorsi muscle

Specification	Longissimus dorsi		Significance of differences
	Red Mangalitsa	Blonde Mangalitsa	
Water (%)	57.11	57.42	n.s.
Protein (%)	21.34	21.72	n.s.
Fat (%)	20.60	19.89	n.s.
Crude ash (%)	0.95	0.97	n.s.
Cholesterol (mg/100g)	48.78	48.14	n.s.

The data shown in Table 3 presents close values between the two lots, for all the determined indicators, the statistical values being insignificant between lots.

Comparing these data with the ones from specialty literature (proteins 23,87% Csap, 1999) we see that they are smaller probably due to the feeding system and age at which they are butchered.

The results obtained following these researches show that the muscle mass obtained from the Mangalitsa breed has a low quantity of cholesterol (48 mg/100g) compared with the performance breeds (English Large White 76,9 mg/100g), which is a particular advantage for raising and exploiting.

CONCLUSIONS

After some decades in which the breed was neglected, due to the quality of its exceptional meat, the Mangalitsa became, currently, a fashionable breed, in the last years having numerous studies done abroad, especially in Hungary.

The slaughter yield and the carcass attributes prove the good value of the breed, no matter the color variety.

The values of the chemical composition emphasize slightly higher values for the blonde variety, but without any significant differences between the two color varieties. Therefore, we conclude, that between the red and blonde varieties there are no significant

differences concerning the quality of the carcass and the meat.

The low cholesterol value and also the special sensory qualities of the meat, motivates, through their value, the reorientation of the consumers's demands towards the products obtained from this breed.

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