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## Slaughtering analysis and chemical composition of rabbit meat

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**Abstract.** This study shows the results from examining the portion of the main parts and internal organs in the carcass of rabbits. A total of 22 rabbits of mixed breed (Californian and New Zealand rabbits) were examined of which 11 male, 11 female. The average live mass of the rabbits was  $2\,462 \pm 0,15$  g male and  $2\,472 \pm 0,17$  g female. Carcass with head in male animals averaged  $1,373 \pm 0,12$  kg and female animals  $1,382 \pm 0,15$  kg. Regarding the main categories of meat the largest participation in the carcass showed the pelvic-thigh part while the smallest showed the neck-breast part. The female rabbits achieved higher scores of mass in the pelvic-thigh part for 30 g and 26 g in the neck-breast part. The chemical composition of meat shows that in male animals contain more water, fat, protein and mineral substances.

**Keywords:** live mass, rabbit meat, average portion, chemical composition,

### Introduction

The previous years yielded increased attention for the production of meat containing fewer fats, i.e. meat poorer with cholesterol. Under today's economic conditions the production of rabbit meat becomes more and more significant. The rabbits are very fertile and characterized with a quick and intensive growing, large biological value of the meat and a large conversion degree of the food (Hammed and Casida, 1969; Hafiez, 1970; Urosevic et al., 1986; Urosevic et al., 2000; Kapitan, 2006).

The increase of human population imposes the need for producing more food, especially one with higher values of biologically more valuable proteins, where the rabbit breeding fits in significantly. When breeding the rabbits one must pay special attention to nourishment and feeding of the rabbits. This meat is widely present in human nutrition all over the world. In our country, the breeding of rabbits does not have a big tradition like in the western countries, or it is incidental. Lately, farming of rabbits starts as a new trend, so in Sveti Nicole was recently built a new slaughterhouse for rabbits. In our country there are no examinations concerning the qualitative and quantitative characteristics of the meat from rabbits.

The chemical composition of rabbit meat depends on breed, sex, age, diet, method of cultivation. (Ouhayoun, 1974; Živković and Hadžiosmanović, 1976; Dickerson, 1978; Adrian et al., 1981; Paunović, 1984; Rajić and Ševković, 1984; Panić et al., 1986; Panic et al., 1989; Urošević et al., 1986; Dalle Zotte et al., 1996; Hernández et al., 1998; Gondret et al., 1998; Wood et al., 2003; Pascual et al., 2004; Polak et al., 2006; Ali, 2007). One of the reliable indicators of the quality of rabbit meat is very low content of cholesterol in that it ranges between 45 and 85/g mg/100 fresh meat. (Živković and Hadžiosmanović, 1976; Lukefahr et al., 1989; Lukefahr and Ozimba, 1991; Sourci et al., 2000; Dalle Zotte, 2002; Polak et al., 2006).

The aim of our research is to examine the impact of gender on

meat yield and chemical composition of meat obtained from crossbred rabbits of California and New Zealand breeds.

### Material and Methods

The research of the portion of the parts from rabbit's carcass was conducted on 22 slaughtered rabbits with mixed hybrids Californian and New Zealand breed. From which 11 males and 11 females animals. Rabbits are reared in farming conditions and kept in separate wired cages. They were fed *ad libitum* with granulated rabbit food - palettes that contain alfalfa hay, barley, corn, wheat, soya pods, sunflower pods, premix, salt, vitamins and minerals. This food contained 18% crude fiber, 15% protein 1% calcium and 2% fat. Twenty hours before slaughtering they were stopped to be fed. The slaughtering of the rabbits is done of 77 days age.

The slaughtering and primary processing was conducted in accordance to all veterinarian and sanitary conditions prescribed by the law. The slaughtering was done by cutting open the blood vessels. After the skinning, each hide was weighed on an electronic scale to determine the percentage portion of the hide in the total body mass. After weighing of the carcass with the head and without the head, the carcass was cut in four parts: pelvic-thigh, flank part, forelegs and neck-breast part. The pelvic-thigh part was extracted first by cutting in parallel of the spine by the cranial rim of the bowel bone's wings. Then the flank part was extracted by a cut going in parallel with the spine by the rim of the last rib. The back with the ribs was extracted from the foreleg and the neck by a cut going parallel with the spine in the area of the sixth vertebrae cutting the ribs and the inter-rib muscles. Thus the following parts were obtained: thighs, kidneys with the stomach wall, back with the ribs, foreleg with the collar and the chest. The participation of certain tissues in the rabbit's carcass was determined by dissection and weighing of the muscle, fat and bone tissues. The contents of water in meat determine the method of drying at a temperature of 105 °C. Fat determine by the

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method of Suckled. Proteins are determined by the method of Kjeldahl. Mineral substances determine moon mineralization in Muffle oven at 550-650 °C temperature.

All data were processed according to a variation statistical method computed by the UNIVARIATE procedure of the statistical program SAS (SAS Institute 1999).

## Results and discussion

From gender aspect the female rabbits achieved larger live mass. The shown values of the yield for the female rabbits were 55.92% in average with the head on and 51.52% without the head. The same values for the male rabbits were 55.76% with the head on and 50.77% without the head ( Table 1).

**Table 1.** Carcass composition of male and female rabbits

Indices	Males		Females	
	$\bar{x} \pm S\bar{x}$	CV	$\bar{x} \pm S\bar{x}$	CV
Live weight (kg)	2.462±0.15	3.98	2.472±0.17	0.41
Carcass with head (kg)	1.373±0.12	0.42	1382±0.15	0.57
Carcass without head (kg)	1.250±0.14	8.00	1273±0.12	0.21

Regarding the main categories of meat the largest participation in the carcass showed the pelvic-thigh part while the smallest showed the neck-breast part ( Table 2). The female rabbits achieved higher scores of mass in the pelvic-thigh part for 30 g and 26 g in the neck-breast part. We must point out that these differences are due to the higher live mass of the female rabbits ( Table 2). These

**Table 2.** Participation of the main categories of meat (%) in the composition of the rabbit carcass

Carcass ratio	Males		Females	
	$\bar{x} \pm S\bar{x}$		$\bar{x} \pm S\bar{x}$	
	%	g	%	g
Pelvic thigh part	420.5±0.018	30.52	450.50±0.020	30.67
Flank part	392.0±0.140	28.52	418.00±0.017	29.04
Forelegs	300.5±0.015	21.88	300.15±0.013	21.94
Neck breast part	260.0±0.012	19.08	213.35±0.010	18.35

characteristics do not show a statistically significant difference between the genders ( $p>0.05$ ). The obtained results are in accordance with the results of other authors (All, 2007; Ciavoski and Ruminskaya, 1982; Caklovica et al., 1986; Urosevic et al., 1986;). These authors report that the portion of the rear part of the rabbit's carcass ranges from 31.4% to 36.5%, the back part ranges from 34% to 39.3% and the portion of the front part of the carcass ranges from 22% to 24%. Regarding the chemical composition of meat of male animal contain more water, fat protein and mineral substances ( Table 3). From the results on the chemical composition shows that there is no statistically significant differences between the two sexes rabbits ( $p>0.05$ ).

Our results are in accordance with the results reported by the

**Table 3.** Chemical composition of meat in male and female rabbits (%)

Chemical composition	Males	Females
Water	74,60±0,02	74,52±0,01
Proteins	21,5±0,07	21,32±0,05
Fat	2,5±0,03	2,44±0,02
Mineral materials	1,40±0,02	1,38±0,01

previously mentioned authors. ( Zivkovic and Hadziosmanovic, 1976; Dickerson, 1978; Rajic and Sevkovic, 1984; Panic et al., 1986; Panic et al., 1989; Adrian et al., 1981; Paunovic and Sevkovic, 1984; Omrcen, 1995; Gondret et al., 1998; Skandro et al., 2008, Wood et al., 2003; Polak et al., 2006;). Mentioned authors found and average water content between 59.75% and 75,40 % proteins ranged between 18,20 % and 25,1 % fats ranged between 0,30 % and 18,45%, mineral materials ranged between 0.4 % and 4.01%.

## Conclusion

The average live mass of the rabbits was 2 462 ± 0,15 g male and 2 472 ± 0,17 female. Carcass with head in male animals averaged 1,373 ± 0,12 (kg) and female animals 1,382 ± 0,15 kg. Regarding the main categories of meat the largest participation in the carcass showed the pelvic-thigh part while the smallest showed the neck - breast part. The female rabbits achieved higher scores of mass in the pelvic-thigh part for 30 g and 26 g in the neck-breast part.

Regarding the chemical composition of meat of male animals contain more water, fat, protein and mineral substances.

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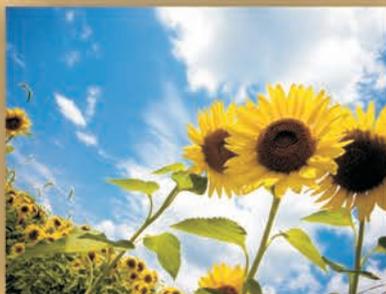
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