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STUDY OF THE DEGREE OF COLLAGEN SOLUBILITY IN PORK AT «TERNOPIL MEAT PROCESSING PLANT» LTD

Introduction. Pig production is the fastest growing livestock industry in Ukraine and the world. In terms of production efficiency, pigs compare favorably with other types of farm animals. Pig farming plays an important role in shaping Ukraine's food security, with pork consumption accounting for more than 40% of total consumer demand.

Differences in the nature of autolysis between NOR, PSE and DFD meat determine the specificity of their organoleptic, physicochemical, functional, technological and structural-mechanical characteristics, which determines the targeted use of meat with NOR, PSE and DFD characteristics in the production of meat products and semi-finished products [1].

The aim of the study is to determine the physicochemical parameters and monitor the degree of collagen digestion of pork produced at Ternopil Meat Processing Plant LLC.

Results. An important stage in establishing the quality of pork meat obtained from slaughtering animals raised in different farms was the determination of physicochemical parameters (moisture, protein, fat, ash). It is known that different cuts of the animal carcass contain collagen, which is characterized by different resistance to hydrothermal effects. Therefore, along with the physicochemical properties of pork, the degree of collagen digestibility was investigated.

After analyzing the data obtained, it can be noted that the highest moisture and fat content is characterized by meat obtained from the slaughter of pigs from the Farm №7 (Stare Misto village / Pidhaitsi village). Pidhaitsi (reproducer)). For other samples, these indicators decrease, but the data obtained are within the error range. As for the protein content, the highest values are characteristic of meat obtained from the slaughter of pigs from the Farm №2 (Nastasiv village (growing)). The ash content for all samples is within the error limits.

The method for determining the degree of collagen digestibility is based on determining the difference in the oxyproline content in raw meat and in meat after heat treatment under certain conditions [1]. Preliminary studies to identify the optimal cooking time for meat to further determine the amount of undigested collagen in it have shown that the most acceptable temperature is about 100 °C with a process duration of 1.5 hours.

The degree of collagen digestibility was calculated as the difference between the oxyproline content in raw and gluten-free cooked meat, attributed to its content in raw meat.

When assessing collagen's ability to boil, it is necessary to note a certain pattern: higher indicators of the degree of digestibility, in contrast to NOR of pork, are characteristic of raw materials with signs of deviations during autolysis, namely for exudative raw materials. This is due to a sharp change in pH in the the acidic side at the initial stages of raw material maturation, which in turn promotes the loosening of collagen fibers and, accordingly, their better ability to to disintegrate under hydrothermal influence.

The lowest level of collagen digestibility is characteristic of samples of pork meat obtained from pigs raised in the Farm № 1 (Nastasiv village (reproducer)). For the samples obtained from pigs reared in the Farm № 2 (Nastasiv village (growing)) and Farm № 8 (Dvorichchia village (reproducer)), this indicator increased by 2.5% and 12.8%, respectively. The highest indicator is characteristic of pork meat obtained from Farm № 7 (Stare Misto village / Pidhaitsi village). Pidhaitsi (reproducer)) and is 62.6%, which is on average 19.3% more than in Farm №1 and Farm №2 and by 7.2% compared to Farm №8. The data obtained indicate that a greater tendency to deviate from the classical course of autolysis in the direction of obtaining raw materials with signs of PCE are pigs delivered from Farm №7,

which may be due to longer transportation distance compared to other farms and other vital factors.

After analyzing the data on collagen's ability to boil, It is necessary to note a certain regularity: higher indicators of the degree of digestibility, in contrast to the NOR of pork, are characteristic of raw materials with signs of deviations during autolysis, namely for raw materials with lower pH after slaughter, i.e. exudative raw materials.

Keywords: meat, autolysis, collagen, quality.

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