

DOI 10.36074/11.12.2020.v2.10

## USING OF HORSEMEAT AS AN ADDITIONAL SOURCE OF RAW MATERIALS FOR EXPANDING THE RANGE OF MEAT PRODUCTS

ORCID ID: 0000-0002-6591-0414

**Ihor Strashynskyi**

Ph.D, Associate Professor,  
Associate Professor Department of Meat and Meat Products Technology  
*National University of Food Technologies*

ORCID ID: 0000-0002-8816-0388

**Oksana Fursik**

Assistant Department of Meat and Meat Products Technology  
Educational and Scientific Institute of Food Technologies  
*National University of Food Technologies*

*UKRAINE*

Today, due to the extensive development of intensive industrial growing of farm animals, such as poultry, pigs and, to a lesser extent, cattle, the production of horse meat almost all over the world, with the exception countries and regions with traditionally developed herd horse breeding, is inferior to the production of these animals meat and it is mainly used in the manufacture certain varieties of sausages to improve the structural and mechanical properties of finished products, as well as their piquant taste.

There are regions in the world where horse meat is widely used as the main meat food product. Horse meat is now available in France, Belgium and Sweden, where horse meat sales outnumber mutton meat sales. In France, horse meat consumption is 0.4% of all meat consumed. There are about 750 horse meat butchers in the country and about 11,000 farmers who raise horses for sale for meat. The main part of horse meat products that produced in France are exported to Italy. Italians consume twice as much horse meat as the French and love the meat of young horses, while the French prefer red meat from older horses [1].

Historically, there have been traditions of horse meat consumption in Asian countries, including Kyrgyzstan, Kazakhstan, Mongolia, in some regions of Russia – the Altai Republic, Ryazan Region, SAHA Republic (Yakutia), Krasnoyarsk Territory, Udmurt Republic, etc. Since ancient times, Ukraine has also been a place of developed horse breeding and supplied the best riding horses for the army. Now these animals are used as draft force, for obtaining food, medicines, serum in order to stimulate the fertility of farm animals, in sports.

Today there is a lot of information about the physicochemical, biological properties of horse meat, which indicate to its high nutritional value and confirm the possibility of using it as a therapeutic, dietary product.

The results of the nutritional value studies of horse meat (from the dorsal part of the carcass) (Table 1) are allowed to speak about the possibility of purposeful use of horse meat in the production of meat products.

The analysis of the chemical composition revealed that horse meat is characterized by a high (19.9%) protein content with a low fat content (3.0%).

Table 1

**The general chemical composition of horse meat**

Raw materials	Content, %				Moisture:protein ratio	Protein:fat ratio
	water	protein	fat	ash		
horse meat (from the dorsal part of the carcass)	76,10±0,8	19,90±0,5	3,0±0,1	1,00±0,02	3,8:1	6,6:1

[author's development]

The ratio of proteins and fat is important when assessing the nutritional value of raw meat. Calculations show that the ratio of these nutrients to horse meat from the dorsal part of the carcass is 6.6:1 and indicates about the high nutritional and biological value of horse meat.

Muscle proteins of horse meat have a complete set of amino acids in the required ratio of essential amino acids, while the content of tryptophan, histidine, tyrosine, phenylalanine and methionine is higher than in beef. Horse meat protein is characterized by a sufficiently high amino acid balance and it is not inferior to traditional raw meat (beef, pork, poultry) [2, 3].

The functional and technological properties of horse meat muscle tissue (Table 2), in particular, its water-binding capacity (WBC), which is one of the most important indicators of raw materials, has been studied. During heat treatment, physicochemical, structural and mechanical changes occur, that causes the loss of the bound waterpart. The amount of bound moisture that remains in the muscle tissue is characterized by the water-holding capacity index (WHC).

At the same time, WHC characterizes the moisture content in muscle tissue and the amount of moisture that is separated during heat treatment. WHC characterizes changes in the physico-chemical and structural-mechanical properties of muscle tissue. This indicator is closely related to the yield of finished products.

Table 2

**Functional and technological properties of horse meat muscle tissue**

Horse meat	Indicators, %		pH
	WBC	WHC	
From the dorsal part of the carcass	73,9±0,8	67,3±1,1	6,01±0,05

[author's development]

According to the research results, it can be seen that high rates of WBC and WHC allow the use of horse meat in the technology of semi-finished products. This will help reduce moisture loss during heat treatment and increase the yield of finished products.

The use of horse meat, which contains a significant amount of vitamins and mineral elements, helps to improve metabolism in people with obesity, atherosclerosis, hypertension, diseases of the heart, liver, pancreas, etc.

**Conclusion.** The conducted studies of the general chemical composition of horse meat, indicators of WBC and WHC confirm the expediency of its use in the technology of meat and meat-containing products.

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