

ELEMENTS REGARDING THE LIPOLYSIS AND PROTEOLYSIS OF FROZEN MEATS FROM THE MANGALITA BREED

B. Pășărin^{1*}, G.V. Hoha¹, C.E. Nistor¹, C. Simeanu¹

¹Iasi University of Life Sciences, Faculty of Food and Animal Sciences, Iasi, Romania

*e-mail: pbeno@uaiasi.ro

Abstract

In the case of the present research, it was wanted to know and evaluate the transformations and changes of lipolytic and proteolytic type that intervene in the intimacy of the meat-raw material, obtained from the Mangalița pig breed and preserved by freezing, for different periods of time.

The need to determine such sensory, physico-chemical and microbiological transformations, which appeared during the conservation period in some animal products, is of great interest in the spectrum of evolution of quantitative and qualitative parameters and their correlation with the state of freshness and optimal storage time, in order to know as accurately as possible the term of validity, durability of a food product, as well as to ensure consumer protection.

To study the lipolytic and proteolytic changes in pork, which occurred during storage in the frozen state, we worked on a number of 25 carcasses, the samples needed for analysis being collected before freezing at -18 ° C and then at intervals of 2, 4, 6 and 8 months storage. The control sample and the experimental samples were taken from the muscles of the anterior thigh, the croup and the dorsal muscles.

Regarding the lipolytic changes, their nature was of hydrolytic and oxidative type, these transformations being highlighted by determining the free acidity, in the first case, and by determining the peroxide index (PV), the iodine index (IV), the content in malondialdehyde (MDA-TBARS), epihydric aldehyde and fatty acids, in the second case.

Such research has a special role to play because, for example, oxidizing products existing in food and absorbed in the body have a combined action on the enzyme system, vitamins and proteins.

Regarding proteolytic changes, they were initially in a beneficial proteolytic register, not exceeding certain limits, which is characterized by improved nutritional-biological properties but later developed harmful forms for the consumer, appearing factors such as biogenic amines (histamines, betaines, etc.) or toxic compounds, such as iodine, hydrogen sulfide, phenols, mercaptans and ammonia.

In conclusion, we can argue that lipolytic changes depend on the morphological structure of the meat, the presence of marbling and perselation, the content of saturated and unsaturated fatty acids and the ratio between them, the duration and storage conditions, the type of salting, the presence of heavy metals, pesticides, the presence of hemoglobin and the intensity of enzymatic activity (the action of lipoxidases).

Regarding the dynamics of proteolysis in frozen pork, it was influenced by the age of the animal, the fineness of the muscle fiber, the ratio between the interfibrillar and interfasciolar connective tissue, the freezing temperature, the degree of biotic pollution of the meat, the nature of the biota, etc.

Keywords: lipolysis, proteolysis, frozen meat, Mangalita