

# FORMING THE FLAVOR AND TASTE OF SUMMER SAUSAGE

*3 year student of the processing technologies department Nagarokova D.K.*

*4 year student of the processing technologies department Akopian K.V.*

*kand. tehn. sciences, associate professor Nesterenko A. A.*

*kand. tehn. sciences, associate professor Keniyz N. V.*

*Kuban State Agrarian University, Krasnodar Russia*

**Abstract.** *The most complicated processes in summer sausage produce technology are forming its flavor, consistency and texture. The basis to create flavor and taste of summer sausage is a fermentative process taking place in the ripening period. These processes depend on a number of factors described in the article.*

**Keywords:** *flavor, summer sausage, starter cultures, structure, ripening.*

The organoleptic characteristics of the finished product are defined by its looks, color, consistency and mince texture cut, smell, taste which are characteristic of every product type and must meet the traditional tastes and habits of the population [1,2]. Taste and flavor are the most important indicators of the food products that significantly condition the reflective excitability of the digestive glands.

The use of some definite substances in forming the product flavor depends on many factors, quantity and threshold concentration. Some substances with low threshold concentration drastically influence the flavor formation that is explained by high sensibility of the sensory organs to them. The lowest threshold concentration have volatile sulfur containing substances that is why their role in flavor formation is great [3,4].

Basic taste feelings can be divided into the following ones: bitter, salty, sour and sweet. The rest of the experienced flavor shades are a complex of main taste feelings combination.

The predecessors of flavor and taste are amino-acids and their amides (series, asparagine and glutamic acids, glutamine, glycine, etc.) which accumulate during the autolysis process at proteins and natural peptides, such as glutathione, carnosine and anserine breakdown. Glutamine acid and its sodium salt even in small amount (about 0,03 %) give the product its meaty taste [5,6].

The basis to create flavor and taste of the summer sausage is a fermentative process that goes on during the ripening period.

To the substances participating in meat products taste creation one refers non-volatile extractive substances and also salty ingredients added.

During the process of normal ripening the useful bacteria break open sugars. By this they make conditions for acids accumulation and the enzymes effect makes it possible to accumulate free amino-acids that promotes to form flavor and taste of the finished product [7].

Increase of free amino-acids content takes place more intensively at first days of summer sausage ripening that proves the intensity of proteolysis process. The amino-acids accumulation not only provides the sausage flavor formation but they can be the source of forming volatile substances [8].

Carbonyl compounds take the first place in the flavor substances complex. They dominate in the threshold of sensitivity and content variety. Carbon compounds are often final in the biochemical and physic-chemical processes. Low molecular organic acids are another class of flavor compounds that play an important role in forming meat flavor. Along with other acids the lactic acid is of great importance giving the finished product a little sour taste. In spite the fact that lactic acid has a weak volatile character and by itself does not form flavor it is involved into flavor creating reaction [9,10].

Under lipase influence that is contained in meat and also bacteria enzymes (the most active are micrococcus and also mold fungi and yeast to produce sausage with a fungi coat) free fat acids are produced. Interacting with oxygen they produce as final products of the oxidation-reduction reactions aldehydes, ketones, volatile acids, spirits and ethers. These substances are of very intensive aroma.

One of the quality indicators of summer sausage is its thick, monolith structure the formation of which starts at its modeling.

At the seasoning period of sticks begins the formation of the mince second structure connected with proteins ability to interact as «protein-protein». To watch the change and formation of a new mince structure in detail is possible with the help of histological method [11].

At the histological analysis of the summer sausage mince at the first seasoning stage we can observe weakening and partial lose by the muscular fibers the transverse and longitude banding patter. At further observation of the going on changes we can see the fibers homogenization. After seven days of seasoning we can notice thickening of muscular fibers the edge of which can be recognized by the nuclears location in the connective tissue [12].

During the cold smoking of summer sausage the processes that began at seasoning continue but with bigger intensity due to the temperature raise the fermentation destruction of tissues and composite parts take place and a new space structure and dehydration of the product occur. The speed of these processes is influenced by the smoke substances and it is revealed in outer layers where the accumulation of the smoke substances is more significant.

Numerous researches have proved that in the process of summer sausage produce the changes in some nitrogen fractions take place which accumulate as the result of proteolysis of non-protein substances, free amino acids among them. The highest proteolysis activity the muscular cathepsins show if the pH value is 5,4.

A significant factor of making a desired texture of summer sausage is a quick drop of the mince pH value.

It is known that the dry speed of summer sausage is directly dependent on the level of water binding capacity of the product, the mince pH value, concentration and electrolytes continuity phase and also the level of the initial proteins structure breakdown and is connected with a quantity ratio and hydrophilic centers activity. In the summer sausage produce one of the most technological conditions is reduction of the mince pH value to the close to iso-electrolytic point of the meat materials proteins. It promotes the decrease of water binding capacity of the mince, the formation of the finished product mucolytic structure and the conditions for the active proteins interaction are created. The micro-flora and accumulation of their life activity products depend on the mince pH value [13,14].

The proteins hydrolysis occurs under the influence of as tissue protease so as bacteria enzymes participating in fermentation. As the result of mechanical breakage and adding two, three percentage of salt and also the pH value drop the activity of muscular cathepsins increase.

The specific raptures of the meat muscular fibers integrity, increase of the mince plasticity degree and homogenization of the mince mass occur as the result of the fermentative proteins destruction [15].

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