Introduction

Production of sausages in Croatia has a long tradition in households, crafts and in industry. Most processes are underway around the world, as well as here, has experienced a great development in recent years. Artisanal modes of production have been completely replaced by industrial ones. Meat processing means application of one or more pressing procedures with the goal of obtaining a sufficiently sustainable, sensory – attractive, good product. It means application of different technological procedures with the goal of satisfying culinary, gastronomic, i.e. nutritional needs of the population. As the use of modern appliances for chopping meat, fat tissue and other constituent parts (connective tissue, skins, offal) dominates in technological process of cooked sausages, average consumers are even more brought into a situation that they are not able to make a direct sensory evaluation of cooked sausages. Quality of meat products depends on quality of raw materials, i.e. on quality of meat in the strict sense of the word, on the choice of additives and the choice of technological processing procedures and the quality of packaging materials. Any disturbance of the listed relations harms sustainability because of insufficient preservability effect it affects quality because of degredation and devastation of the production system and sensory traits of a finished product. In the goal of determining a nutritional value and functional characteristics, as well as products' acceptability, it is necessary to conduct chemical analyses which determine composition of the products and finally, estimate their health safety (Cvetko et al., 2004).

As it comes to production mode of cooked sausages, two production modes are possible as a rule of warm and of cooled or frozen meat. The production technology of cooked sausages has changed significantly in our country lately. Along with the achievements in the world, classical production of cooked sausages, especially Frankfurters, has been practically abandoned and it has given way to conventional production. That production is characterized by using modern machines (vacuum cutter, collod mill, vacuum mixer, automatic thermal smoke chamber, etc.), adipose tissue emulsifiers in water, "smear" of skin and the use of new emulsifiers. At first, they were proteins in the form of Na-casein, and later, even more isolated soy proteins and other preparations (Zdravkovic, 1996).

We pay special attention to sensory traits of sausages as well as to their chemical composition. Cooked sausages of good quality have to be firm, juicy and not to release water. They should have a pleasant characteristic odor, which is complemented with smells of smoke and spices. Their casing is of dark red color, without damages, folds or deformations, and firm consistency. Cross-section of cooked sausages has to be homogeneous, of light pink color and without a larger number of small cavities, as well as without visible parts of connective and adipose tissue.

All the researched samples were evaluated as Frankfurters (n=152) in sensory evaluation. Considering the fact that provisions of the Regulation on Meat Products (Anon., 2007) which is currently in force in the sense of sensory evaluation of cooked sausages, hasn’t significantly changed, the sausages meet all the listed regulations.

In comparison with earlier researches of sensory quality of cooked sausages (Srnjak, 1980; Karlo, 1985), we can say that our samples were actually above expectations in terms of quality. Our research results have shown that average water content was 58.50%, fat (ISO 1440), protein (ISO 3527), hydroxyproline (ISO 9346) and ash (ISO 581) in Frankfurter samples for the needs of determining chemical quality of cooked sausages.

Results

During the sensory research of samples, it was determined that the surface of sausages was without damages, folds and deformations. All sausages were firm and juicy, and didn’t release fluid under a slight pressure. Sausage surface was of a homogenous pink color. All of the samples were evaluated as satisfactory according to requirements of the current Regulation on Meat Products (Anon., 2007).

Discussion

All the researched sausage samples were evaluated as Frankfurters (n=152) in sensory evaluation. Considering the fact that provisions of the Regulation on Meat Products (Anon., 1991) and the Regulation on Meat Products (Anon., 2007) which is currently in force in the sense of sensory evaluation of cooked sausages, hasn’t significantly changed, the sausages meet all the listed regulations.

All the researched sausage samples underwent a sensory research after their delivery to the laboratory. The research included the appearance (shape), consistency, cross-section, color, odor and aroma. Sensory researches were performed by a three-member panel. There were determined water content (ISO 1440), fat (ISO 1443), protein (ISO 3527), hydroxyproline (ISO 9346) and ash (ISO 581) in Frankfurter samples for the needs of determining chemical quality of cooked sausages.

By keeping in mind those tabular values, we can say that our determined average values in accordance with those literature data. If we analyze the listed data in terms of previous regulations (Anon., 1991) and the fact that back then water content was limited to 60%, and fat content to 20%, we can say that all the researched samples meet the regulations. Furthermore, by interpreting the listed results in terms of current legislation, i.e. protein quantity in frankfurters must be 10%, we also conclude that all the researched samples meet the prescribed conditions. In spite of that, texture data differ. So, a chemical composition of cooked sausages satisfactorily satisfied the prescribed norms because of excessive adding of adipose tissue into sausage making (Slamp, 1957). This author determined in his researches water content of 51.3% and fat content of 32.3% in frankfurter samples after one day of storage. The research that goes beyond the scope of the above is by Stankovski (2003), who determined that 191-192% and 67% of the total of 853 chemically analyzed sausage samples didn’t meet provisions of the Regulation (Anon., 1991) and they were 55 samples (9,57%) because of the increased content of added phosphates, 1 sample (0.12%) because of the increased sodium content, 67 samples (13.05%) because of the increased water content and 62 samples of cooked sausages (20.39%) because of more than 30% of fat. On the other hand, Leks (2002) determined within cooked sausages monitoring that average values of quality parameters didn’t surpass the prescribed values provided by the Regulation on Quality of Meat Products (Anon., 1991). The results of our research have shown that all the analysed frankfurter samples meet the conditions of packaging materials (Anon., 2007). Considering all the listed, we find it necessary to emphasize the fact that meat producers in some cases may lose their customers’ trust because of the fact that technological process of cooked sausage production is dominated by use of modern appliances for fra