

## Study of main physicochemical characteristics of Polish chicken sausages

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### Abstract

The paper aims as main objective the study of sensory characteristics and the main physical - chemical properties of the Polish chicken sausages produced in the West part of Romania.

Sensory examination was performed by analyzing the appearance, texture and taste.

The studied processed samples were analysed in terms of physical-chemical parameters: water content, dry matter content, fat, NaCl and determination of animal fat oxidation.

**Keywords:** Polish chicken sausages, physical-chemical characteristics, sensory characteristics

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### 1. Introduction

All food items of animal origin are composed from the biochemical point of view, from an organic complex represented by proteins, carbohydrates, lipids, vitamins, enzymes and an inorganic complex that include water and mineral salts.

The nutritional value of meat is high due to its high content of protein, vitamins, and minerals. Proteins are basic components of food that provide nutritional value. So, the products quality will be appreciated according to their protein content [2].

Meat sensory characteristics have particular importance in determining the quality of meat, along with nutritional, technological and hygiene factors. The main meat sensory characteristics are: colour, taste, smell (aroma). For meat products can be determined the degree of freshness through sensory methods, physical (mechanical), chemical (hydroxyproline determination) and histological methods [5].

Knowledge of physicochemical and sensory characteristics of meat is necessary in solving the problems of storage, in determination of equipment capacity, in processing through cold and heat and in appreciation of sanitation.

The physical characteristics of meat and meat products are important in determining both storage space and determining the energy needed for processing in different phases [10].

Polish chicken sausages are part of hot smoked meat/pasteurized prepared without structure. It is a fresh chicken sausage seasoned well. This meat product type has a homogeneous composition, seasoned and treated by smoking and boiling [1].

### 2. Materials and method

**Materials:** Have been analyzed five different Polish chicken sausages samples from different producers of West Romania area.

**Methods:** Samples were analyzed by assessing sensory appearance, texture and taste and physical - chemical properties by determining water content, dry matter, fat, NaCl and determination of animal fat oxidation.

Measurements were carried out according to the following standard:

- Moisture content SR ISO 1442:2010 [6]
- Ash content SR ISO 936:2009 [7]
- Fat content SR ISO 1443:2008 [8]
- Sodium chloride content SR ISO 1841:2000 [9]

### 3. Results and Discussions

In order to conduct the experimental part were analyzed samples of Polish chicken sausages from three different manufacturers on the West Romanian market.

In terms of sensory determination, all samples were analyzed in accordance with accepted legal norms:

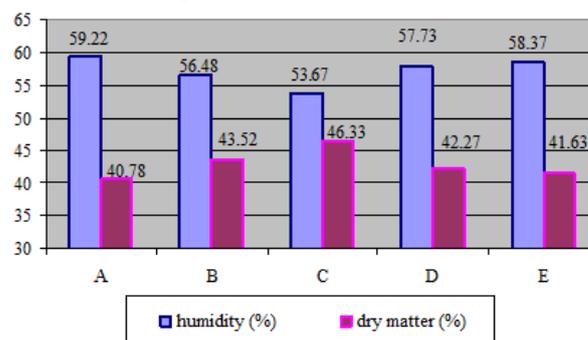
- Form - cylindrical pieces with a diameter of 17 mm and 10-12 cm in length, obtained by twisting in strings the casings of sheep or pork.
- Appearance - pale pink, continuous coating, undamaged, clean, non-sticky;
- Appearance in section - fine paste of chicken well bounded, compact, uniform; without large air holes, shall not be admitted flaxes or molten fat.
- Taste and smell – specific to fresh product and spices used. Without foreign smell and taste (sour, mold, rancid).
- Consistency – soft, elastic.

In the physical-chemical analysis of the samples were considered the following conditions of admissibility for physical-chemical properties: Water - maximum 67%; Fat - maximum 30%; NaCl - maximum 2.8% [1-4].

The results of physical - chemical properties of the samples tested are shown in the following figures and tables.

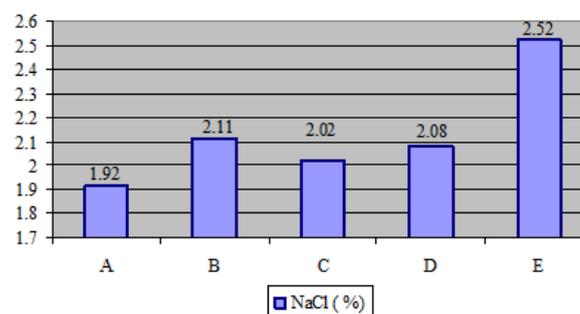
The moisture content of the analyzed samples ranged from 53.67% to 59.22% being in the maximum limit allowed for this parameter (67%).

The dry matter content was between 40.78 % and 46.33 %, the maximum allowed limit by the current legislation is 33%. Figure 1 shows a graphic representation that shows in a suggestive way the results of the experimental research.

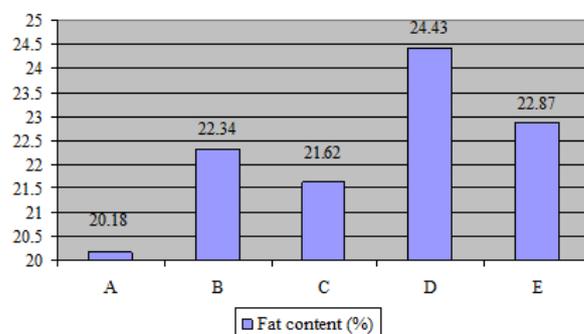


**Figure 1.** Moisture content (%) for polish chicken sausages

The salt content obtained from Polish chicken sausages samples was below the maximum allowed limit (2.8%), ranging between 1.92% and 2.5%. Figure 2 shows the experimental results in terms of sodium chloride samples content.



**Figure 2.** Sodium chloride content (%) of polish chicken sausages



**Figure 3.** Fat content (%) in polish chicken sausages samples

The fat content of the analyzed samples ranged between 20.18 and 24.43 %. Maximum admissible value for this parameter is 30%, all analyzed samples were within admissibility limit (figure 3). The freshness degree of polish chicken sausages samples was determined using Kreiss reaction. The data analyzed by Kreiss reaction, showed that all five polish chicken sausages samples were fresh, with no signs of alteration.

#### 4. Conclusion

The sensory and physicochemical analysis results for polish chicken sausages samples were within the allowed legal requirements.

Following the experimental results lead to the conclusions:

- Moisture content obtained was below the maximum allowed limit for this parameter, ie 67%;
- Sodium chloride content in the analyzed samples was within the limit of admissibility of 2.8%;
- The fat content obtained for all samples ranged below the maximum admitted limit of 30%.
- Kreiss reaction shows that all five Polish chicken sausages samples were fresh and there are no signs of alteration to them.

It can be concluded that all five types of polish chicken sausages has excellent sensory and physicochemical characteristics within limits suitable for consumption.

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**Compliance with Ethics Requirements.** Authors declare that they respect the journal's ethics requirements. Authors declare that they have no conflict of interest and all procedures involving human / or animal subjects (if exist) respect the specific regulation and standards.

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