



REVIEW RESEARCH PAPER

Review of Sausage and Salami Standard in Iran

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Abstract

Meat products are prepared and produced according to the national standards of each country. Therefore, in this study, we will review Iran's national standards for Sausage and Salami. Sausage production was first carried out in Iran around 1300 AH (Approximately 1921) by Polish immigrants, which was later continued by Armenians. The standards for the production and testing of sausages in Iran include standards 2303 (Sausage-specifications and test method) and 6103 (Detection of unauthorized animal tissue by histological method). These standards address the formulation of sausages, their classification, chemical properties, microbial properties, histological properties, and packaging. The National Standards Organization of Iran is the one that formulates the laws and regulations related to standards and implements and supervises them. The Standards Organization of Iran has a governmental structure as a subsidiary of the presidential institution. Almost all of the country's gross domestic products, especially in the field of food, have the standard mark engraved next to the Food and Drug Administration's health apple.

1. Introduction

The word sausage is taken from the Polish language, as the Poles had a type of dried sausage called kielbasa, and since the Poles were the first to bring it to Iran, the word sausage has become the term in Iran. However, the production of sausage in Iran began in a factory in 1928 (1307 AH), when a Russian named Afanasow started working in Bandar Anzali with a small, manual machine and met the daily needs of a number of foreign nationals who were there. In 1930 (1309 AH), another person named Lischiniski, who was from the Soviet Union and had a history of making sausages there, imported a small factory that produced between 40 and 50 kilograms of sausages daily into the country and was operating in Bandar Anzali until 1933 (1312 AH). Lischiniski moved the factory from Bandar Anzali to Tehran in 1312 AH and became a partner with Mr. Arzuman Markari Avadsians. He was an Arme-

nian from the city of Salmas in West Azerbaijan who had gone to Russia and returned to Iran after the Russian Revolution (Kalantari-Hesari *et al.*, 2025).

The National Standards Organization of Iran is the one that formulates the laws and regulations related to standards and implements and supervises them. The Standards Organization of Iran has a governmental structure as a subsidiary of the presidential institution. Almost all of the country's gross domestic products, especially in the field of food, have the standard mark engraved next to the Food and Drug Administration's health apple. Sausages and salamis are categorized into three types based on production technology: heat-treated, raw, and processed. The main and common feature of all types of sausages and salamis is the formation of an emulsion and the creation of a paste (farce), which is the most critical stage in production. Sausages and salamis produced in Iran are of the heat-treated type, prepared using temperatures of

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approximately 78 degrees Celsius. The main ingredients of sausages and salamis include meat, fat, water, and permitted additives. The three key principles in production are water retention and absorption, fat stability, and the formation of a suitable emulsion (Yarvari *et al.*, 2025).

1.1. Methods

To collect information for this study, article search sites such as Google Scholar (<https://scholar.google.com/>), PubMed (<https://pubmed.ncbi.nlm.nih.gov/>), and the National Standards Organization website (<https://www.inso.gov.ir/>) were used.

2. Results and Discussion:

2.1. Red Meat Used in Sausages and Salami

Meat from halal animals includes: sheep, goat, cow, buffalo, and camel (Asadi *et al.*, 2020; National Standard of Iran 2303, 2005).

2.2. Poultry Meat Used in Sausages and Salami

Meat from halal poultry includes: chicken, turkey, duck, goose, quail, ostrich, and partridge (Asadi *et al.*, 2020; National Standard of Iran 2303, 2005).

2.3. What Does the Term “Chicken Paste” Mean in the Sausage and Salami Standard?

The term “chicken paste” refers to mechanically separated chicken meat, which is an edible paste-like product obtained by mechanically separating meat from the carcasses of slaughtered chickens after removing edible and inedible offal.

Packaging and transportation of chicken paste are prohibited. Each production unit must only use mechanically separated chicken meat produced in-house (as part of the production process) for making sausages and salami (Elyasi *et al.*, 2022; National Standard of Iran 2303, 2005).

2.4. Classification of Sausages and Salami

Sausages and salami are divided into two groups: with chicken paste and without chicken paste (Ghaderi *et al.*, 2022; National Standard of Iran 2303, 2005).

2.5. Sausages and Salami Without Chicken Paste

This group is further divided into six categories based on meat content: 40% meat, 55% meat, 60% meat, 70% meat, 80% meat and 90% meat (National Standard of Iran 2303, 2005).

2.6. Use of Cheese in Sausages and Salami

For products with 55%, 60%, and 70% meat content, the standard permits the use of 15% cheese. For products with 80% meat content, the use of 10% cheese is allowed. The use of cheese is prohibited in products with 40% and 90% meat content (National Standard of Iran 2303, 2005).

2.7. Use of Mushrooms in Sausages and Salami

For products with 55%, 60%, and 70% meat content, the standard permits the use of 15% mushrooms. For products with 80% meat content, the use of 10% mushrooms is allowed. The use of mushrooms is prohibited in products with 40% and 90% meat content (National Standard of Iran 2303, 2005).

2.8. Sensory and Physical Characteristics of Sausages and Salami

These include color, taste, smell, texture, slice ability, foreign materials (such as stones or glass), air pockets, and fat migration under the casing (National Standard of Iran 2303, 2005).

2.9. Chemical Characteristics

These include moisture, total protein, total fat, total carbohydrates, total phosphorus, pH, salt, residual nitrite, and artificial colors. The test for measuring residual nitrite must be conducted on the fourth day after production or later (Ghaderi *et al.*, 2022; National Standard of Iran 2303, 2005).

2.10. Microbiological Characteristics of Sausages and Salami

These include mold and yeast, *Escherichia coli*, total microbial count, coliforms, Salmonella, Clostridium, and *Staphylococcus aureus* (Kalantari-Hesari *et al.*, 2025; National Standard of Iran 2303, 2005).

2.11. Histological Characteristics

The history of histology dates back to the study of the microscopic structure of tissues and organs and has evolved over the centuries. The science has developed significantly with the development of the microscope and tissue preparation techniques. In the early 17th century, scientists such as Malpighi and Grew studied plant structures using early microscopes and recorded images of plant tissues (National Standard of Iran 6103, 2016; Asadi *et al.*, 2023; Yarvari *et al.*, 2025).

In the 19th century, with the development of the microscope and tissue preparation techniques, histology emerged as an independent science. During this period, scientists such as Johann Purkinje and Marie Villiers developed techniques for staining tissues to

view more detail. Histology also witnessed significant advances in the 20th century. New techniques such as the electron microscope made it possible to observe cellular and molecular structures with very high precision. Histology also became an applied field in medicine and biology with the advent of tissue engineering. And finally, in the 21st century, tissue engineering has made significant advances, with the aim of repairing and replacing damaged tissues using engineered cells and materials. Sausages and salami must be free from unauthorized organs and tissues of livestock and poultry.

2.12. Packaging

Packaging of sausages and salami is done in three ways based on production conditions and product type: conventional (rolled), vacuum-sealed, and modified atmosphere. Permitted synthetic casings such as polyamide and cellulose, as well as natural casings like processed small intestines of halal animals, may be used.

2.13. Important Labeling Notes for Sausages and Salami

- The use of the term “ham” for naming salami is prohibited.
- Storage conditions must be stated (keep refrigerated at 1 to 4 degrees Celsius).
- Production and expiration dates must be included.
- For sausages, the production and expiration dates must be repeated at least three times per meter on each roll. For salami, they must be written at least once per roll.
- Net weight must be stated.
- The name and address of the production unit and the product's brand name must be included.
- The product type, percentage of meat used, and type of meat must be clearly stated (e.g., “Salami with 40% chicken meat”).
- For products containing chicken paste, the phrase “Contains chicken paste” must be clearly displayed.

This standard makes a brief reference to halal meat animals, and it is recommended that more information be provided about halal meat animals. It also does not provide any recommendations to consumers regarding the harms of excessive consumption. It is recommended that informative annexes be included in the standard text regarding the health risks of excessive consumption of these products.

3. Conclusion

By comparing the national Iranian standards for sausage and salami and their test methods with the standards available in Europe, it can be concluded that most of the existing standards are consistent with European standards. The only difference in the origin of the meat used is that in Europe, the use of some animals such as pigs is permitted, while in Iran only Halal meat can be used. The rest of the microbiological and chemical tests are designed in full accordance with European standards. Regarding the histological test of meat products, no codified standard was found in Europe. (European Natural Sausage Casings Association)

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