

Organoleptische und mikrobiologische Veränderungen auf baader Truthahnfleisch

Zusammenfassung

In den vergangenen Jahren hat sich der Verbrauch sowohl des durch Maschinen entknochten Geflügelfleisches, als auch des qualitativ minderwertigeren Fleisches vergrößert, welches Fleisch von ganzen Geflügelrumpfen hergestellt wird, oder durch Absondern des Fleisches von Knochen, auf denen noch gebundenes Fleisch ist. Dabei wird durch die Maschinenbearbeitung die Struktur der Muskelfaser vernichtet oder geändert. Um trotz der minderwertigeren Qualität des so hergestellten Fleisches die Herstellung der zufriedenstellenden Nahrungserzeugnisse zu sichern ist es notwendig, dass solches Fleisch organoleptisch und mikrobiologisch in Ordnung ist. Das Ziel dieser Arbeit war, organoleptische und mikrobiologische Charakteristiken des baader Truthahnfleisches zu untersuchen, das durch Maschinen entknochten Fleisches, welches keine Knochen enthält, für welche die meisten Hersteller eine Dauerfrist von 12 Monaten von der Herstellung deklarieren, unter der Bedingung, dass das Fleisch bei Temperatur von -18°C gelagert wurde. Die organoleptische und mikrobiologische Untersuchung begann im neunten Lagermonat, sie umfasste die Untersuchung der entworfenen und gekochten baader Fleischmuster. Die Beobachtung verlief während der Inempfangnahme des Fleisches und wurde im achten, neunten und zehnten Lagermonat sowie nach dem Verlauf der deklarierten Frist von 12 Monaten wiederholt. Während der Beobachtung wurden kleine organoleptische Veränderungen schon im neunten Monat bemerkt, viel bedeutendere aber nach dem zehnten Lagermonat. Trotz der organoleptischen Veränderungen zeigten sowohl die Resultate der mikrobiologischen Untersuchungen von baader Truthahnfleischmustern in allen Intervallen als auch die chemische Analyse am Ende der Untersuchung einen richtigen und korrekten Nahrungsmittelstoff in allen Untersuchungsperioden.

Schlüsselwörter: durch Maschinen entknochtes Geflügelfleisch, baader Fleisch, Dauerfrist, organoleptische Eigenschaften

Cambiamenti organolettici e microbiologici della carne di tacchino "Baader"

Sommario

Negli ultimi anni cresce l'uso della carne di pollame separata dall'osso usando la macchina. Si tratta di carne della qualità più bassa prodotta dall'addome intero del pollame oppure separando la carne dall'osso su cui c'è tessuto connettivo. Con la lavorazione da macchina la struttura del tessuto muscolare viene distrutta o cambiata. Nonostante che si tratti della carne di qualità più bassa prodotta in questo modo, per ottenere un prodotto soddisfacente nel senso alimentare è necessario che questa carne sia adattata ai criteri organolettici e microbiologici. Lo scopo di questo lavoro era esaminare le caratteristiche organolettiche e microbiologiche della carne di tacchino "Baader". È il tipo della carne separata dall'osso con la macchina e perciò non contiene ossa. Per questa carne la maggior parte dei produttori stabilisce la data di scadenza di 12 mesi, partendo dalla data di produzione, a patto che sia deposta a temperatura di -8°C . L'esaminazione delle caratteristiche organolettiche e microbiologiche è stata cominciata il nono mese del deposito e includeva il controllo dei campioni della carne "Baader" sgelati e quei cotti. La carne è stata osservata appena arrivata e poi il procedimento è stato ripetuto l'ottavo, il nono e il decimo mese del deposito nonché dopo la dichiarata data di scadenza di 12 mesi. Osservando la carne i cambiamenti organolettici insignificanti sono stati notati già dopo il nono mese del deposito e quei notevoli dopo il decimo mese del deposito. Malgrado i cambiamenti organolettici notati, sia i risultati dell'analisi microbiologica della carne di pollame "Baader" fatta negli stessi intervalli che l'analisi chimica fatta alla fine dell'esaminazione hanno mostrato che durante tutti i periodi dell'osservazione si tratta della materia di qualità di salate.

Parole chiave: carne di pollame separata dall'osso usando la macchina, carne "Baader", data di scadenza, caratteristiche organolettiche

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Production and quality of home-made Istrian dry sausages

Bratulić¹, M., Ž. Cvrtić Flek², T. Mikuš², B. Njari², L. Kozačinski²

conference report

Summary

This paper presents the procedures of traditional production of home-made Istrian sausages. Procedures and recipes for sausage production at home differ depending on the household and family tradition. During the sausage making, all households stick to the basic production norms aiming at quality, shelf life and safety. The paper presents the results of sensory, chemical and microbiological research of Istrian sausages.

Key words: autochthonous meat products, sausage quality

Introduction

Different kinds of sausages and other meat products are produced in rural households and family farms in the area of central Istria. These are traditional products which should become recognizable Croatian products after the procedure of protected designation of origin and geographical indication, which has been started by The Association of Istrian Prosciutto Producers and other county institutions. In the area enclosed by this research there were registered households that produce pigs of white, meaty breeds of Large White, Landrace and their crossbreeds, and traditional Istrian sausages. The aim of this work was to present the production technology, as well as quality and safety of Istrian sausages. Sausages for personal needs are produced in households while respecting minimum standards. After the products are protected and

in compliance with the regulations, there is an aspiration for them to be produced in registered facilities for treatment, processing and storage of products of meat origin, located within rural households. Products will be marketed over different distribution channels in market-halls, by a direct sale in a household or by an offer within rural tourism.

Material and methods

Samples of sausages originated from 15 family farms which are involved in traditional production and feeding of pigs, and production of home-made Istrian sausages. The sausages were sampled after the end of the production, on the 30th day of ripening. Sausage samples were analyzed in the Department of Hygiene and Technology of Animal Foodstuffs of the Faculty of Veterinary Medicine, University of Zagreb and Veterinary Institute, Rijeka. Sensory, bacterio-

logical and chemical researches of home-made Istrian sausage samples (n=15) were performed. Sensory traits were assessed by a sensory panel by taking into consideration the consistency, odor, taste, cross-section appearance and technological processing of a finished product. We calculated the basic chemical composition, water (ISO 1442), fat (HRN ISO 1443), calculated the content of proteins (HRN ISO 8968-2), then ash (HRN ISO 936) and salt (AOAC Anon., 2002) in chemical research. In bacteriological research there was determined the presence of *Salmonella* spp. (HRN ISO 6579) and *Listeria monocytogenes* (HRN ISO 11290-1), then the number of *Staphylococcus aureus* (HRN ISO 6888-1), *Enterobacteriaceae* (HRN ISO 5552), sulphite-reducing clostridia (HRN ISO 15213), *Escherichia coli* (Coli ID (bioMerieux) 37 °C 24 hours), and *Enterococcus* spp. (KEA (Merck) 37 °C 48 hours).

¹ Mario Bratulić, DVM, Paris d.d., Pazin, Croatia

² Željka Cvrtić Flek, PhD, assistant professor, Tomislav Mikuš, DVM, professional associate, Bela Njari, PhD, full professor, Lidija Kozačinski, PhD, full professor, University of Zagreb, Faculty of Veterinary Medicine, Dpt. of Hygiene and technology of Foodstuffs of Animal Origin, Heinzelova 55, Zagreb, Croatia

Results and discussion

Sausage production is characterized by the choice of similar raw material base and the choice of almost the same spices. After processing in a slaughterhouse, cooled meat without bacon is chopped up to pieces of 12 mm diameter. After mixing and adding spices (salt, pepper, cooked Malvasia wine and garlic), the mixture is stuffed into small intestine of pigs. Sausages are split into pairs of up to 12 cm long, and then they are hung on rods. Drying and maturing of sausages lasts for 30 days. After the production, sausages are stored at refrigerator temperature or lower. Specific quality of the production of these sausages is also in the possibility of storing them in lard up to 12 months. Production process of all sausages included in this research is similar in stages of mixing, stuffing the casings (pork intestines cleaned at home or bought), splitting into pairs and tying the sausages. Sausages are hung on rods after these procedures and they are dried in Istrian curing sheds for approximately the same time, of around 30 days.

Sausages are consumed dry; they are stored in a refrigerator or freezer at minus regime in vacuum, or more frequently after thermal processing in lard up to 12 months. After making an insight into recipes, it is visible that all sausages are added a certain quantity of wine cooked with garlic, approximately the same amount of table salt (1.6 to 1.7 g per kg of mixture), and in terms of spices there was added pepper in quantities that don't exceed 0.3 g per kg of mixture. Some households add ground pepper or a few bay leaves, whereas paprika or sugars are not added. All the researched samples (DLG method) in sensory research were of acceptable color and consistency, a pleasant smell and tastes characteristic for the product (addition of wine is specific for Istrian sausages). It must be mentioned that all assessors made



Graph 1: Average results of sensory assessment of Istrian sausages

Table 1: Chemical composition of Istrian sausages

Sample	Proteins	Fat	Ash	Water	NaCl
1.	25.79	56.52	4.68	13.00	2.40
2.	32.25	40.22	5.03	22.50	2.85
3.	26.75	51.79	5.24	16.10	1.95
4.	25.86	54.74	3.85	15.00	3.22
5.	27.46	52.47	4.25	15.23	2.11
6.	21.79	27.51	3.67	46.98	2.67
7.	33.61	43.10	3.77	19.50	2.86
8.	35.40	42.23	5.64	14.34	2.86
9.	22.46	47.23	3.18	26.13	2.52
10.	23.11	51.33	3.42	21.10	3.06
11.	23.72	24.68	3.88	46.11	2.65
12.	15.34	49.97	4.77	28.10	3.22
13.	37.38	35.06	6.87	19.79	4.79
14.	23.72	36.45	5.16	32.00	4.56
15.	32.13	38.19	5.29	23.40	2.14

an additional comment of too much adipose tissue in cross-section appearance of sausage. Sensory traits were therefore unequal, but within boundaries of specific quality of the traditional Istrian sausage (Graph 1.). In comparison to researches of Kovačević et al. (2009) who were determining physicochemical properties and a chemical composition of samples known under the name Home-made Slavonian Sausage, we can determine that, according to their results, the content of fat in cross-section appearance of sausage is actually the most important parameter. As the fat content larger than acceptable was determined in our samples, we consider that sausages got lower grades because of that. In sensory traits researches of

autochthonous Croatian sausages, Kovačinski et al. (2006) determined slight aberration in products' juiciness as the consequence of maturing for too long.

Water content (Table 1.) was relatively small in certain samples (below 20%), but it was over 40% in three samples, so mean value for water content is 23.95%. Protein content in sausages was different and it was 15.34% to 37.38% and it was 27.18% in average. Fat content varied from 24.68% to 56.52%, or 43.40% in average. Our results are in accordance with the results of Kovačević et al. (2009) who determined average water content of 21.70%, fat content of 42.30% and protein content of 22.92% in their

Herstellung und Qualität der einheimische Würste aus Istrien

Zusammenfassung

In dieser Arbeit sind Verfahrensschritte der traditionellen Herstellung der Würste aus Istrien dargestellt. Verfahrensschritte und Rezepturen unterscheiden sich vom Haushalt zu Haushalt, sie sind von der Tradition in der Familie abhängig. Bei der Herstellung von Würsten halten sich alle Haushalte an die Herstellungsgrundnormen, dies mit dem Ziel die Qualität, die Dauer und die Richtigkeit der Erzeugnisse aufrechtzuerhalten. In der Arbeit sind Resultate der sensorischen, chemischen und mikrobiologischen Untersuchung der Würste aus Istrien dargestellt.

Schlüsselwörter: autochthone Fleischerzeugnisse, Wurstqualität

Produzione e qualità delle salcicce di casa dell'Istria

Sommario

In questo lavoro vengono presentati i procedimenti della produzione tradizionale delle salcicce di casa dell'Istria. I procedimenti e le ricette per la produzione domestica delle salcicce si distinguono a seconda della casa e della tradizione familiare. Nella produzione delle salcicce tutte le case seguono le regole base della produzione, tutto per avere il prodotto di qualità, di durata e di correttezza. Il lavoro dimostra i risultati dell'analisi sensorica, chimica e microbiologica delle salcicce dell'Istria.

Parole chiave: prodotti di carne autoctoni, qualità delle salcicce

researches of chemical composition of Home-made Slavonian Sausage. Such researches were also conducted on autochthonous Spanish products (Salgado et al., 2006) where a high fat content was also determined. A quantitative relation between proteins and fat is 1.00: 1.59 in average, which indicates a product of high biological value. The basic chemical composition and chemical indicators of quality of home-made Istrian sausages indicate the usage of different quantities of raw materials, as well as the production procedures of the same meat products in each household.

Bacteriological research of sausages did not determine the presence of *Salmonella* spp. and neither *Listeria monocytogenes* in 25 g, nor sulphite-reducing clostridia in 1 g. *Staphylococcus aureus* was determined in one sample. The number of Enterobacteriaceae at the end of ripening was at the most 5×10^5 g (min 10^2 to max 5×10^7 g). So Zdolec et al. (2007) determined in their researches the decrease in number of enterococci during the ripening of traditional home-made fermented sausages, but the final number was about 10^3 g. In the research of SAMELIS et al. (1998), the number of enterococci stayed con-

stant during ripening and it was 10^5 cfu/g in the end. *Escherichia coli* were determined in three samples in our research in quantities higher than 10^2 g, which is the highest quantity allowed according to the national regulations.

Conclusion

By researching samples of home-made sausages it was determined that all the researched samples satisfy quality parameters of home-made sausages in terms of sensory traits and chemical composition. The described technological process and hygienic conditions need to be improved, which is indicated by the findings of certain bacterial species. The research results are a contribution to the activities of the Association of Istrian Prosciutto Producers who started the protection procedure of traditional meat products. The research results can be used for coordination and standardization of production and making necessary specification for obtaining protected designations of origin and geographical indication.

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