



STUDIES REGARDING THE WATER CONTENT OF PORK HAM

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Article history:

Received:

13 April 2017

Accepted:

1 September 2017

Keywords:

Ham;

Water content;

Food safety.

ABSTRACT

The aim of this research was to determine the water content from two samples of ham, made by a producer from the West Region of Romania. We obtained and analyzed two types of ham (Prague and Premier), during an experimental period of three years, 2013-2015, before implementing the HACCP system (2013) and after its implementation (2014-2015), in order to track the food quality, regarding the nutritional value.

1. Introduction

Pork ham belongs to the category of pasteurized meat specialties, being obtained from pork pulp and a brine consisting of: water, sugar, nitric salt, meat flavors and sodium tripolyphosphate. Analyzing the composition, pork leg contains heterogeneous unsaturated animal fats, water and salt (Mencinicopschi et al., 2006).

Determination of moisture is one of the basic methods used in food control, being a factor for assessing the nutritional value (the nutritional value decreases with higher water content), but also for the assessment of preservation strength (the preservation strength is better with a lower water content). The humidity is controlled for all food products either directly by assessing the amount of water or indirectly by measuring the dry matter remaining after removal of water (Neacsu and Chirgiu, 2006).

The water content represents the weight loss by heating at a temperature indicated by the analysis method to constant weight. In order to ensure a high protection level of

consumers health it requires a thorough risk control, to prevent illnesses caused by food risk, especially by meat products (Law 150 regarding food safety).

The safety levels to admit chemicals and biological agents in meat products are established by Romanian law by Order no. 210 from 30 august 2006 concerning the admissibility conditions of physic-chemical properties for meat products sausage type.

2. Materials and methods

2.1. Materials

There were obtained and analyzed two types of pork ham (Prague and Premier), during three experimental years, 2013-2015.

2.2. Methods

Determinations were carried out according to the following standards:

SR ISO 1442:2010. Meat and meat products. Humidity content.

SR ISO 17025/2005. General requirements for the competence of laboratories for testing and calibration.

3. Results and discussions

The manufacturing technology for Premier and Prague pressed ham followed where the same in all the three experimental years (2013-2015). Starting with 2014, it was implemented the HACCP system in order to increase food safety and nutritional properties.

The studied ham samples were quarterly physico-chemical analyzed (I. Quarter, II. Quarter, III. Quarter and IV. Quarter), during the period 2013-2015.

The results regarding the nutritional properties of the studied ham samples, were reported at the admissibility conditions established by Romanian law.

The water content in ham has not been legislated by an order or regulation, but literature studies from Romania, highlight a water content of 70% in pressed pork ham (Mencinicopschi *et al.*, 2006).

The analysed samples of Premier ham studied in 2013 record values of water content between 78.51% (I. Quarter) and 78.81% (II. Quarter) (Figure 1), higher than the values highlighted in literature studies of 70%.

Following the analysis performed in 2014 after implementing the HACCP system, the values of the water content in Premier pressed ham samples range between 71.3% (II. Quarter) and 74.81% (III. Quarter) (Figure 1), the results being in accordance with the values of 70% found in literature.

The water content registered in 2014 was lower than those recorded in 2013, resulting that the Premier pressed ham samples studied in 2014 have higher nutritional value because with lower water content, the nutritional value increases.

Following the analysis performed in 2015, the second year after the implementation of the HACCP system, the water content registered values between 72.18% (III. Quarter) and 72.63% (IV. Quarter), values according to

other literature studies.

The values recorded in 2015 (Figure 1) are lower than those registered in 2013, between 78.51% (I. Quarter) and 78.81% (II. Quarter), and those from 2014, between 71.3% (II. Quarter) and 74.81% (III. Quarter), so we can conclude that the implementation of the HACCP has led to an improvement of the nutritional value of studied Premium ham samples. The water content registered in 2014 and 2015 decreased after implementation the HACCP system, that positively influences the nutritional value of the studied products.

Following the analysis performed for Prague pressed ham samples, produced in 2013, the water content registered values between 77.13% (I. Quarter) and 78.59% (II. Quarter) (Figure 2), higher than the value of 70% found in other literature studies.

Following the analysis on Prague pressed ham samples, studied in 2014, the water content registered values between 73.32% (I. Quarter) and 74.28% (II. Quarter) (Figure 2), higher than the value of 70% highlighted in literature studies, but lower than the values determined in 2013, before implementation the HACCP system.

The water content recorded in 2014 was lower than that recorded in 2013, with increasing nutritional value of the studied samples.

Following the analysis performed in 2015, the water content for the Prague ham samples range between 72.21% (III. Quarter) and 73.14% (II. Quarter).

The water content determined in 2015 was lower than the values determined in 2014, and these lower than those in 2013, which highlights a higher nutritional value of samples studied in 2015.

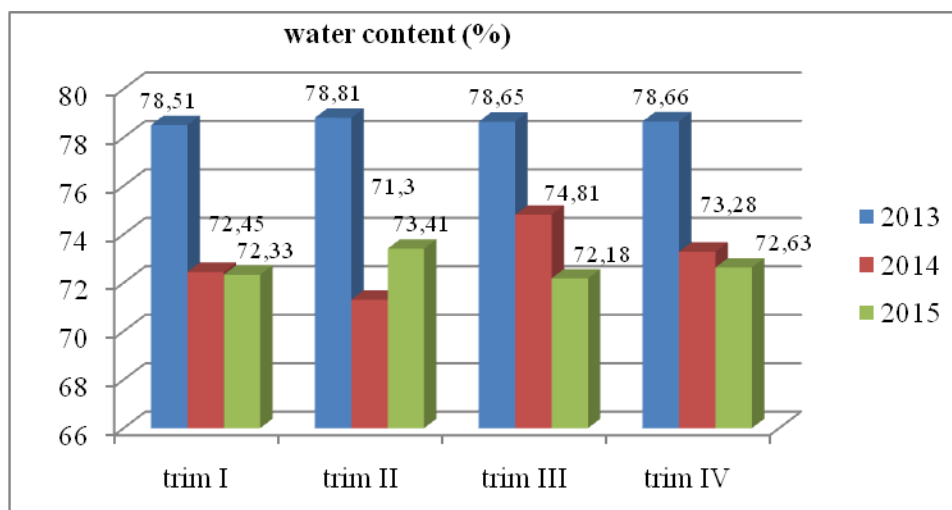


Figure 1.Water content (%) of Premier ham samples studied between 2013 and 2015

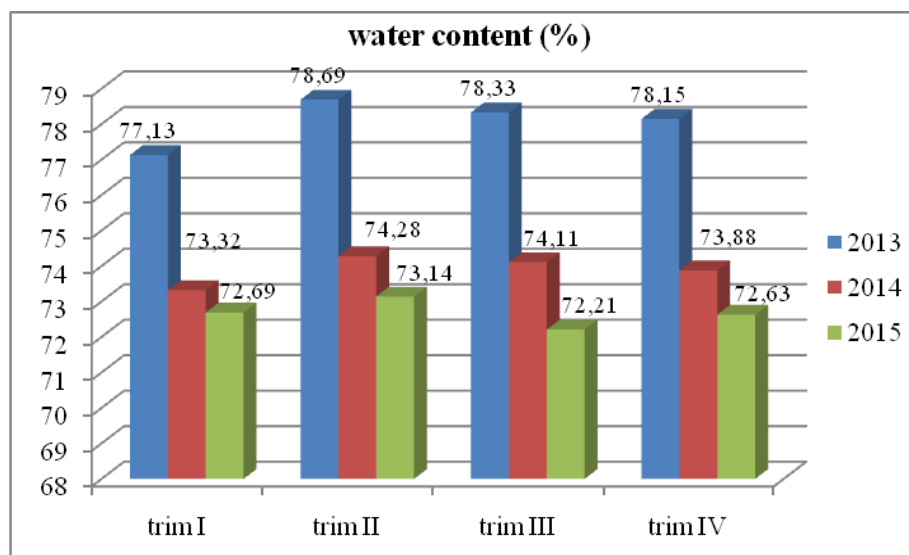


Figure 2.Water content (%) of Prague ham samples studied between 2013 and 2015

4. Conclusions

Implementation of the HACCP system in the technological process has led to an improvement of the nutritional value of studied ham samples.

The water content recorded in 2014 and 2015 decreased compared to samples studied in 2013, a fact that positively influences the nutritional value of the studied products.

5.References

Law 150 of 14 May 2004 regarding the food safety

Mencinicopschi, G., Cironeanu, I., Neagu, M.M.A., Pană, E.L. (2006). *Produse din carne românești*, Editura Altpress Tour, București.

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SR ISO 1442/2010. Carne și produse din carne, inclusiv conserve. Determinarea conținutului de apă.

SR ISO 17025/2005. Cerințe generale pentru competența laboratoarelor de încercare și etalonare.

Acknowledgment

We wish to thank the Banat's University of Agriculture Sciences and Veterinary Medicine Timișoara, Faculty of Food Processing, for a generous helpful of different kinds and support.