CONTRIBUTIONS REGARDING THE NUTRITIVE QUALITY OF "SIBIU SALAMI"

I.M. Pop[1], Gabriela Frunză[1*], Cecilia Pop[1]

[1]Faculty of Animal Sciences, University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania

Abstract

"Sibiu Salami" is a raw-dried salami, with noble mold (Penicillium nalgiovensis), matured for at least 60 days, being certified PGI (Protected Geographical Indication) from 2016. The nutritional quality of "Sibiu Salami" made by the main producers (Salbac, Aldis, Reinert, Salsi and Cris-Tim) was the purpose of this study. Were analyzed 30 samples (six samples for each manufacturer). The crude chemical composition (the amount of water, proteins, lipids, salt and collagen was analyzed using Infrared Spectrophotometer Food Check; the mineral substances were determined by calcination, and the carbohydrate content and energy value were determined by calculation, using conventional formulas. The results of determinations made highlighted small differences between the products analyzed for chemical content and energy value, more obvious in the case of protein content (which ranged between 23.54% and 27.81%), fat (with variations between 37.60% and 40.98%) and water (between 25.96% and 29.87%). For all products analyzed determined water and salt content did not exceed 30% and 5% respectively, falling within the limits of existing standards.

Key words: salami, meat, lipids, proteins, salt

INTRODUCTION

Meat processed products are important food consumed, in many countries around the world [6]. Sensory characteristics such as taste remain crucial criteria for product acceptance, trial and repeat purchase [7, 8, 2].

The presence of some fungi on a variety of food products, like cheeses or cured meat products is beneficial for the ripening of the product and for the development of specific flavour features. The utilization of these fungi as starters, which are inoculated normally as asexual spores on the food products at the beginning of the ripening process, is becoming a usual procedure in the food industry, especially for salami [3, 4, 5, 6]. The starter culture also prevents undesirable fungi or bacteria from growing on the product. *Penicillium nalgiovense* is the most frequently used starter for cured meat products, "Sibiu Salami" from Romania being one of these.

The study aimed a comparative analysis of nutritional quality of five types of "Sibiu Salami", raw-dried salami with noble mold (*Penicillium nalgiovensis*), matured for at least 60 days.

MATERIAL AND METHODS

The samples for this study was represented by "Sibiu Salami", raw-dried salami with noble mold *(Penicillium nalgiovensis),* matured for at least 60 days produced by five different manufacturers from Romania (Salbac, Aldis, Reinert, Salsi and Cris-Tim).

Were analyzed 30 samples (six samples for each manufacturer taken into study), the samples being chopped and homogenized with the help of an electric shredder.

The content of water, protein, fat, and collagen was determined using the automated analyzer Food Check (infrared spectrophotometer); mineral substances were determined by calcination, and the content of carbohydrates and energy value were determined by calculation, using conventional relations (for kcal); energy conversion factors were: 4.27 for proteins, 9.02 for lipids and 3.87 for carbohydrates [1].

*Corresponding author:
frunza.gabriela27@gmail.com
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RESULTS AND DISCUSSION

Following the chemical determinations performed for "Sibiu Salami" a variation in water content from 25.96% to 29.87% was observed, thus complying with the requirements of the standard which provides up to 30% water after the period of maturing and drying, even if for at least two manufacturers the determined values were very close to the allowed limit (29.30% and 29.87% respectively). Nevertheless the average value, for all five producers, in terms of water content was 27.97% in the finished product (Figure 1).

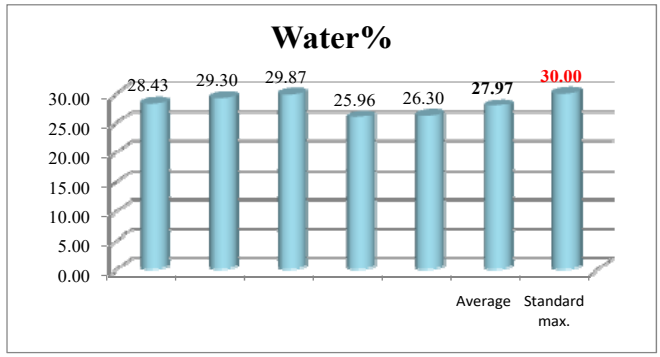


Fig. 1 The water content of "Sibiu Salami"

The amount of determined lipids ranged between 40.98% and 37.60% for all five products taken in the study, with an average of 39.20% falling within the limits of the standard which provides a maximum amount of 46% lipids in the finished product (Figure 2).

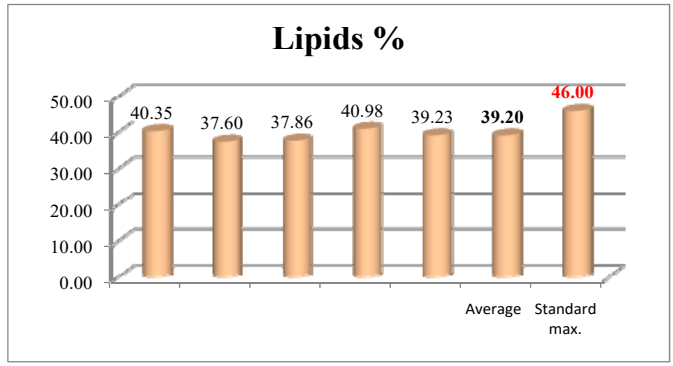


Fig. 2 The lipids content of "Sibiu Salami"

Following the analyzes performed a variation in protein content from 23.54% to 27.81% was observed, with an average of 25.49% for all five products analyzed. All manufacturers of this product meets the requirements of the standard, which legislate a percentage of at least 20% protein at the end of the maturing-drying period (Figure 3).

The manufacturers of "Salam de Sibiu" come to meet the wishes of modern consumers, which search for poorer in lipids food (with over 5% less lipids in the product) and rich in proteins.

Considering the high biological value of meat proteins, due to its essential amino acid content, that all manufacturers have more protein in the product than standard requires (with values ranging from 3.54% to 7.81% more proteins), "Sibiu Salami,, can be considered as having a high nutritional quality compared to other meat products categories and with other food products in general.

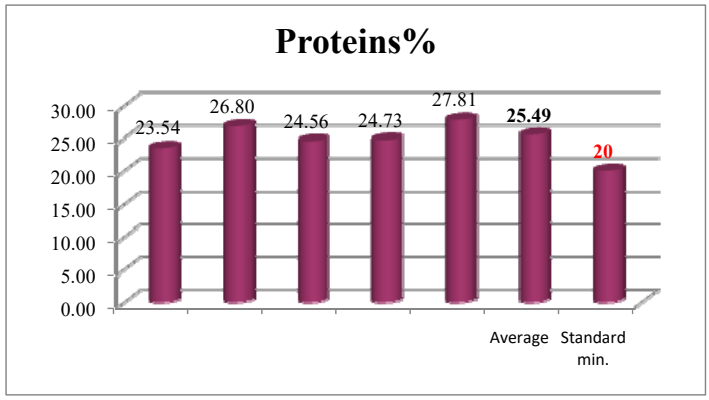


Fig. 3 The proteins content of "Sibiu Salami"

The collagen content had for all five manufacturers' values between 1.16 % and 0.36%.

The average amount of NFEs% ranged between 1.95% and 0.79% (Figure 4).

The average value, for all producers of "Sibiu Salami", in terms of NFEs and collagen content were: 1.24% and respectively 0.73%.

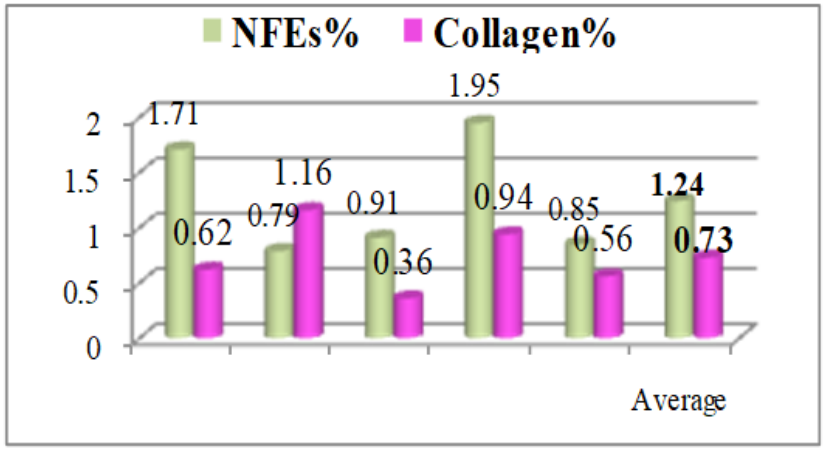
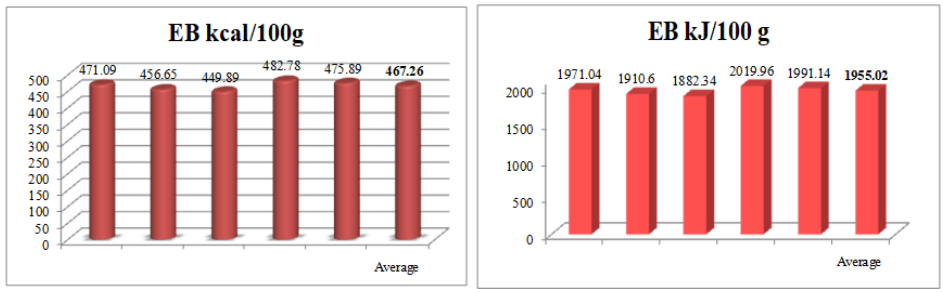


Fig. 4 The NFEs and collagen content of "Sibiu Salami"

The energy value determined for "Sibiu Salami" ranged between 482.78 kcal/100g and 449.89 kcal/100g of product. It can be noticed that they did not exist very large differences between the five products analyzed in terms of energy value (only 32.89kcal/100g of product).

The averages of energy value were 467.26 kcal/100g, respectively 1955.02 kJ/100 g of product (Figure 5, a and b).



a) b)

Fig. 5 The energy value of "Sibiu Salami a) in kcal and b) kJ/ 100g product

The average salt content determined for "Sibiu Salami" ranged between 3.94% and 4.81% with relatively low differences (of 0.87%) between the five producers; the products concerned were placed within the standard limit (which provides for maximum 6% salt in product), the average value for all producers being 4.33% (Figure 6).

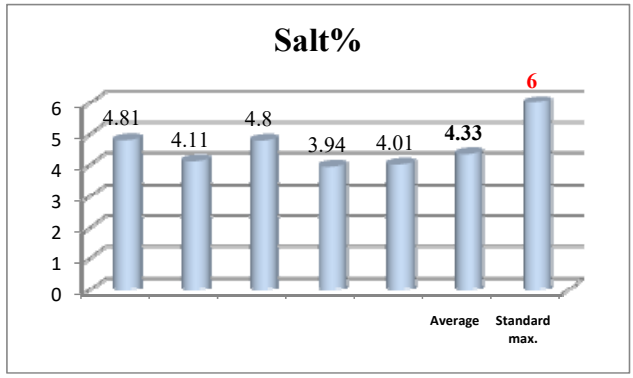


Fig. 6 The salt content of "Sibiu Salami

The average value for ash (figure 7) was 5.55% and varied for all five producers between 5.98% and 4.94%, with differences of more than one percent (1.04%), differences that can be available and on the basis of quantity of added spices by manufacturers.

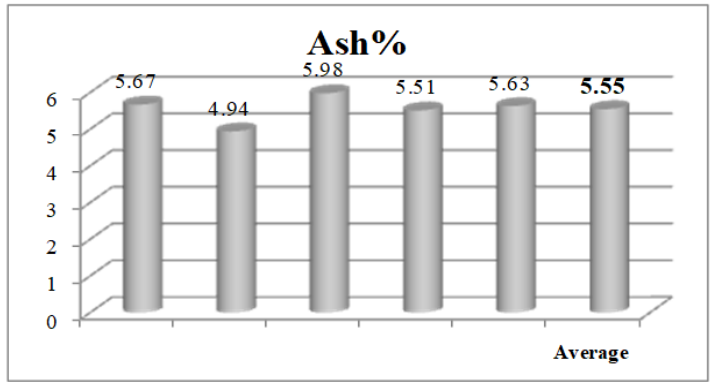


Fig. 7 The ash content of "Sibiu Salami

Taking into account the amount of lipids and salt contained by ”Sibiu Salami” moderate consumption of this product category is recommended, a portion containing 30g, served in the form of thin slices.

"Sibiu salami" is distinguished from other products of the same commercial category by taste, flavour, by the consistency, by the very low moisture percentage of the finished product, by the cuttings reached the size of the "rice grain" and by the ruby colour in the section.

CONCLUSION

The nutritional value obtained for analyzed products has been within the limits of quality standards in place, being close to all manufacturers.

The results of determinations made highlighted small differences between the products analyzed for chemical content and energy value, more obvious in the case of protein content (which ranged between 23.54% and 27.81%), fat (with variations between 37,60% and 40,98%) and water (between 25.96% and 29.87%). The average energy value was 467.26 kcal/100g for all five producers. The amount of water and salt determined did not exceed 30% and respectively 5%, being conform to the standard requirements, for all products.

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