

RESEARCH ON CHEMICAL AND PHYSICAL PARAMETERS IN ASSESSING THE DYNAMICS OF ITALIAN SALAMI

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Abstract

The introduction of new concepts concerning the quality of the food and especially meat (HACCP, RA, CCP, traceability, etc..) Was the decisive step that contributed to the food control system flexibility to adapt to needs and conditions of local. Standardization of practical methods for determining quality parameters and they were strictly laid down in legislation gave a new dimension to food safety and accuracy in all its aspects.

Key words: Italian Salami. specific quality indicators.

INTRODUCTION

When processes become apparent alteration due to the formation of compounds such as H₂S or easily hydrolysable nitrogen consumer health is threatened. These phenomena are especially dangerous as they are either a consequence or severe problems associated with microbiological nature.

At the heat treatment of food products containing lipids, there are produced modifications in terms of appearance, taste, smell, nutritional value and toxicity. There can be thermally degraded both saturated fats and unsaturated ones, such degradations being especially evident when frying food.

MATERIAL AND METHOD

In experiments carried out on Italian Salami there have been pursued the specific quality indicators, pH, amino nitrogen, ammonia nitrogen, amino nitrogen ratio - total nitrogen, ammonia nitrogen ratio - total nitrogen and hydrogen sulfide as an indication of degradation of nutrients.

These determinations will be evaluated at:

- P1 At obtaining
- P2 After 24 h
- P3 After 15 days
- P4 After 30 days
- P5 At alteration

The quality determinations, pH, amino nitrogen, ammonia nitrogen, amino nitrogen ratio - total nitrogen, ammonia nitrogen ratio - total nitrogen and hydrogen sulfide have been conducted in the laboratory of the Food

Control Department of Environmental Protection Faculty Oradea through established methods with the latest apparatus.

RESULTS AND DISCUSSIONS

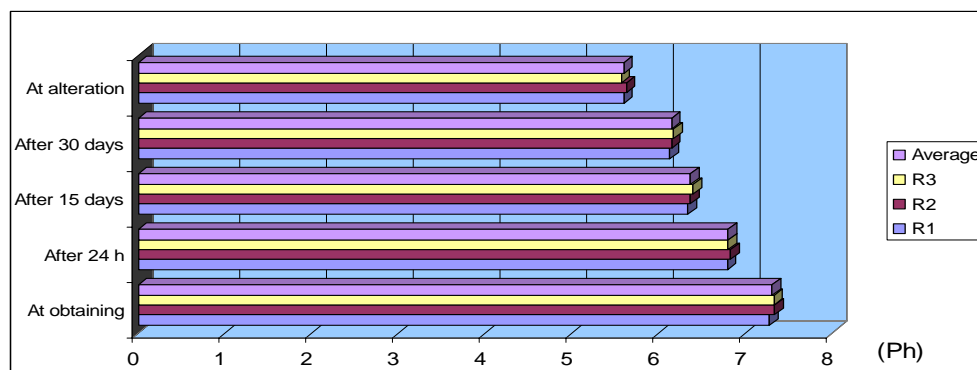


Fig. 1. The pH

Table 1

Table of comparisons Influence of factor 5				
Symbol	Variant	%	Difference	Signification
51	7.32	100.0	0.00	Mt.
52	6.81	93.0	-0.51	000
53	6.37	87.1	-0.95	000
54	6.15	84.1	-1.17	000
55	5.60	76.5	-1.72	000
DL (p 5%)		0.04		
DL (p 1%)		0.06		
DL (p 0.1%)		0.09		

pH when obtaining is below 7.31 and then decreases to 6.15 after 30 days of obtaining and 5.60 since the first signs of deterioration.

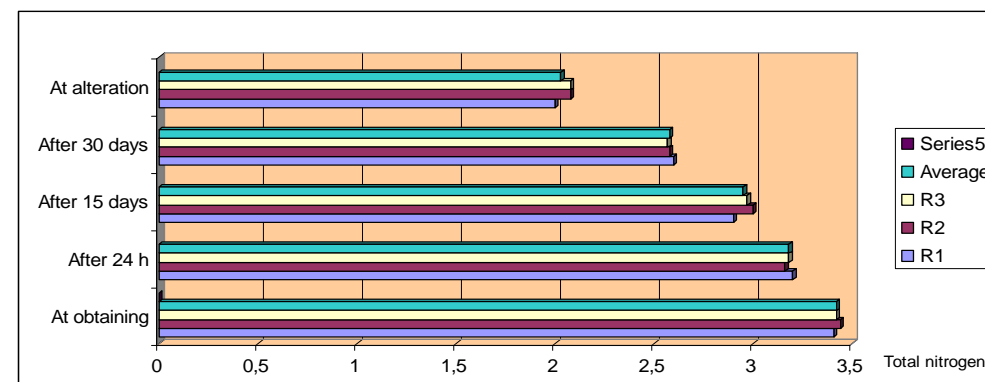


Fig. 2. Total nitrogen

Table 2

Table of comparisons Influence of factor 5				
Symbol	Variant	%	Difference	Signification
51	3.42	100.0	0.00	Mt.
52	3.18	92.9	-0.24	000
53	2.96	86.4	-0.47	000
54	2.58	75.5	-0.84	000
55	2.04	59.5	-1.39	000
DL (p 5%)		0.06		
DL (p 1%)		0.09		
DL (p 0.1%)		0.13		

The total nitrogen, since production is 3.42 g% and after 30 days of storage of 2.58 g%. altered organoleptic changes occur at values of 2.03 g%.

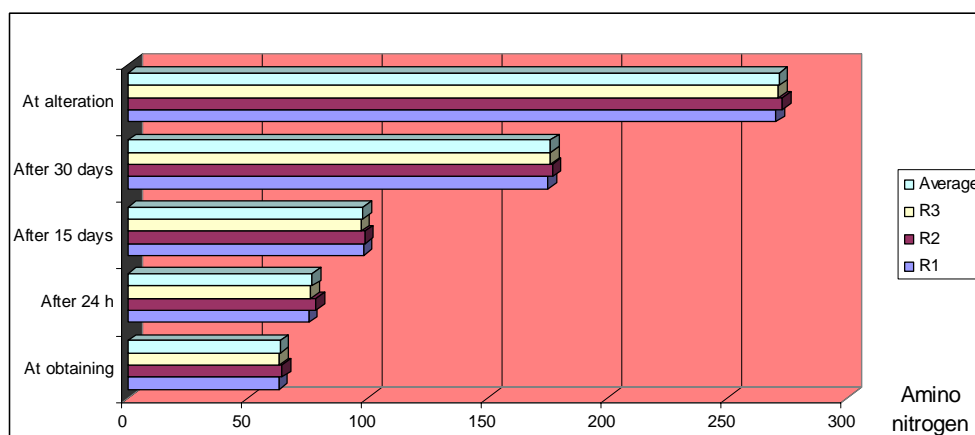


Fig. 3. Amino nitrogen

Table 3

Table of comparisons Influence of factor 5				
Symbol	Variant	%	Difference	Signification
51	63.60	100.0	0.00	Mt.
52	76.86	120.9	13.26	***
53	98.20	154.4	34.61	***
54	176.30	277.2	112.71	***
55	271.66	427.2	208.06	***
DL (p 5%)		1.01		
DL (p 1%)		1.47		
DL (p 0.1%)		2.20		

The total nitrogen, since production is 3.42 g% and after 30 days of storage of 2.58 g%. altered organoleptic changes occur at values of 2.03 g%.

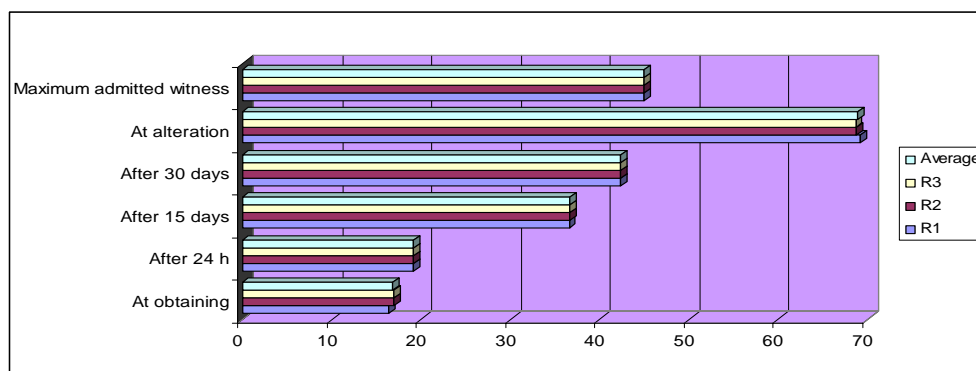


Fig. 4. Ammonia nitrogen

Table 4

Table of comparisons Influence of factor 5				
Symbol	Variant	%	Difference	Signification
56	45.00	100.0	0.00	Mt.
51	16.82	37.4	-28.18	000
52	19.17	42.6	-25.83	000
53	36.68	81.5	-8.32	000
54	42.37	94.2	-2.63	000
55	68.88	153.1	23.88	***
DL (p 5%)		0.37		
DL (p 1%)		0.53		
DL (p 0.1%)		0.77		

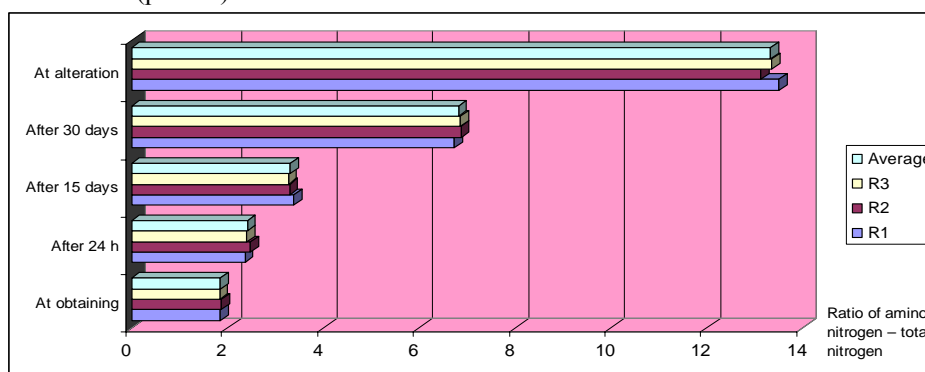


Fig. 5. Ratio of amino nitrogen – total nitrogen

Table 5

Table of comparisons Influence of factor 5				
Symbol	Variant	%	Difference	Signification
51	1.85	100.0	0.00	Mt.
52	2.41	130.2	0.56	***
53	3.32	179.0	1.46	***
54	6.82	368.2	4.97	***
55	13.33	719.4	11.48	***
DL (p 5%)		0.20		
DL (p 1%)		0.30		
DL (p 0.1%)		0.45		

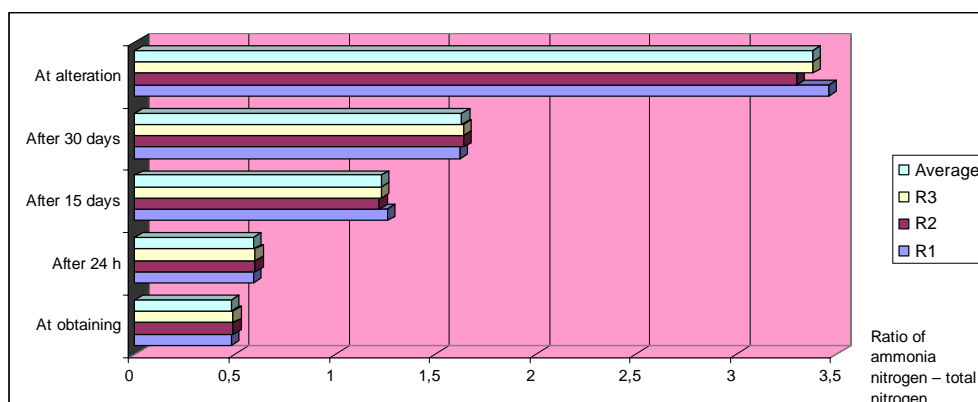


Fig. 6. Ratio of ammonia nitrogen – total nitrogen

Table 6

Table of comparisons Influence of factor 5

Symbol	Variant	%	Difference	Signification
51	0.49	100.0	0.00	Mt.
52	0.60	122.6	0.11	**
53	1.24	254.1	0.75	***
54	1.63	335.6	1.15	***
55	3.38	694.5	2.89	***

DL (p 5%) 0.07

DL (p 1%) 0.10

DL (p 0.1%) 0.16

Ammonia nitrogen when obtaining the product is 16.82 mg% and 42.37 mg% after 30 days, at deterioration it reaches 68.88 mg%.

Table 7

Hydrogen sulfide					
No.	Variant	Repetition			Average
		R1	R2	R3	
1	At obtaining	Absent	Absent	Absent	Absent
2	After 24 h	Absent	Absent	Absent	Absent
3	After 15 days	Absent	Absent	Absent	Absent
4	After 30 days	Weak positive	Weak positive	Weak positive	Weak positive
5	At alteration	Positive	Positive	Positive	Positive

CONCLUSIONS

1. At the Italian Salami, dynamic physical-chemical changes during storage follow the same course as with the rosy sausage (Parisian).

2. The amine nitrogen, during storage of products increases from 63.59 mg% (in production) to 176.30 mg% after 30 days. In altering its value reaches 271.65mg%.

3. The ratio of amine nitrogen- total nitrogen when obtaining the Italian salami is of 1,85, at 30 days after obtaining its value increases to 6,82 and at alteration is of 13,33.

4. The ratio of ammonia nitrogen- total nitrogen when obtaining the product is of 0,48 and then increases to 1,63 after 30 days of storage, and at the appearance of alteration signs has the value of 3,38.

5. Hydrogen sulfide occurs in the product after 30 days with a weak positive reaction and it becomes positive at the alteration of the product.

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