RESEARCHES REGARDING THE MICROBIOLOGIC PARAMETERS VALUE FROM RAW MILK USED IN TELEMEA CHEESE TECHNOLOGICAL PROCESS

CERCETĂRI PRIVIND VALOAREA PARAMETRILOR MICROBIOLOGICI DIN LAPTELE MATERIE PRIMĂ UTILIZAT ÎN PROCESUL DE OBȚINERE A BRÂNZEI TELEMEA

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An important faze for food quality control is verification of microbiological parameters of food products. In this way is assuring the prevention of alimentation toxicological infections to consumer, avoiding the technological and economical losses as well as increasing the products conservation period. In this paper are presents the microbiological exam results from raw milk used in Telemea cheese technological process, for 5 stations studied. The determinations were made on 2 series with 57 samples each of them, prelevated in reception fase, in summer and winter season.
Key words: microbiological parameters, quality, food toxicological infection, technological loss, conservation

Introduction

An important faze for food quality control is verification of microbiological parameters of food products. In this way is assuring the prevention of alimentation toxicological infections to consumer, avoiding the technological and economical losses as well as increasing the products conservation period.

In this paper are presents the microbiological exam results from raw milk used in Telemea cheese technological process, for 5 stations studied. The determinations were made on 2 series with 57 samples each of them, prelevated in reception faze, in summer and winter season.

Materials and Methods

The experimental study is based by connections identification between the raw material quality, the product quality and consumer safety. For this reason, the

samples were prelevated in sterile conditions, in sterile recipients according to trial principles.

For examinate the quality of raw milk used in Telemea cheese technological process, were determinate: the total germs number, positive coagulating Staphylococcus, Salmonella and Listeria monocytogenes.

The methodology of work is to according with following principle: effectuate the inseminations on proper medium; incubations of those and the analysing of develop colonies. The confirmation was effectuated by specific biochemical tests, according to STAS. The resultants obtained were statistical analyse, graphic interpretation and discussed.

Results and Discussions

In table no. 1 is presented the testing of differences significant observed between prelevating stations for GTN (germs total number) microbiological exam, effectuated at raw milk reception, in summer season.

Table no. 1

The testing of differences significant observed between prelevating stations for GTN microbiological exam, effectuated at raw milk reception, in summer season.

Comparative stations	Calculated Student value	Critical value of Student test			
		$t_{0,05}$	$t_{0,01}$	$t_{0,001}$	$t_{0,2}$
P1-P2	0.0749^{NS}	**1.981**	2.621	**3.382**	1.289
P1-P3	**2.0989***				
P1-P4	**5.6606*****				
P1-P5	**5.0165*****				
P2-P3	**2.2271***				
P2-P4	**6.3093*****				
P2-P5	**5.5444*****				
P3-P4	**6.8024*****				
P3-P5	**5.2459*****				
P4-P5	1.6656^{NS}				

For testing the relation between 5 researches stations it is observed that exist high significant differences between registration values for P1, P2, P3 stations (stations without HACCP procedures) and other stations (P4, P5, with HACCP procedure).

In table no. 2 is presented testing of difference significant observed between prelevated stations for GTN microbiological exam, effectuated at raw milk reception, in winter season.

Table no. 2

The testing of differences significant observed between prelevating stations for GTN microbiological exam, effectuated at raw milk reception, in winter season.

Comparative stations	Calculated Student value	Critical value of Student test			
		$t_{0,05}$	$t_{0,01}$	$t_{0,001}$	$t_{0,2}$
P1-P2	0.8032^{NS}	1.981	2.621	**3.382**	1.289
P1-P3	0.6624^{NS}				
P1-P4	**5.5405*** **				
P1-P5	**4.5560*** **				
P2-P3	1.5640^{NS}				
P2-P4	**6.3757*** **				
P2-P5	**5.4018*** **				
P3-P4	**6.6591*** **				
P3-P5	**5.0804*** **				
P4-P5	1.6002^{NS}				

For testing the relation between 5 researches stations it is observed that exist high significant differences between registration values for P1, P2, P3 stations (stations without HACCP procedures) and other stations (P4, P5, with HACCP procedure).

Conclusions

After microbiological exam for each research station, within 2 analysed seasons, it is obtain positive samples for pathogens germs identification:

a) regarding to establish the presence and the number of positive coagulating Staphylococcus, contamination was possible by human manipulation.

b) regarding to presence and number determination of Salmonella it is suspected the milk contamination by pollution with manure from sick animals, germs bearing animals or by environment (feeds, manure, dust, devices, flies, etc.).

c) regarding to presence and number determination of Listeria it was found positive samples; this situations impose the correct and obligatory implementation of HACCP plan in processing units because the milk is one the most important vector for transmitted Listeria from animals to human.

The obtained results are in generally, bigger than legal standard values for microbiological parameters, even in HACCP stations.

The microbiological results obtained in winter season are lower than results for summer season because is possible that the germs have a low environmental resistance in negative temperature.

Bibliography

1. Apostu, S., Rotar Anca (2001): *Microbiologia produselor din industria alimentară*, Ed. Risoprint, Cluj-Napoca.

2. Apostu, S., Rotar Anca (2002): *Lucrări practice de microbiologie alimentară*. Ed. Risoprint, Cluj-Napoca.

3. Dan, V. (2001): *Microbiologia alimentelor*. Ed. Alma, Galați.

4. **Diaconescu, A. (2002)**: *Microbiologie specială. Îndrumător de lucrări practice*. Ed. Agrotehnica, Bucureşti.

5. Rotaru, G., Moraru, C., (1997): *HACCP. Analiza riscurilor. Puncte critice de control*. Ed. Academica, Galați.