Researches Regarding Microbiological Parameters Values of Telemea Cheese

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Abstract
The main objectives of this paper were microbiological parameters which characterized the Telemea cheese for each season, assessment of technologies and thus assortment defects as well as projection of hygienic solution for obtaining qualitative products according to actual standards. We studied 5 units of Telemea cheese processing replaced in different area. For obtaining concrete results we used STAS methodologies and analyze procedure was based on observation, mathematical estimation and experiments (in lab and processing units).

Keywords: microbiological parameters, technology, hygienically solution, quality

1. Introduction

The assortments of cheese represent one of the most important food categories as well as an "easy methods for milk conservation" and them product process was known long time ago. From this food categories came and Telemea cheese, too. Cheese named Telemea is very appreciates and very well sells in our country.

2. Materials and methods

For objectives realization, it taking in accounts 5 Telemea cheese processing units in different areas: Comuna Jilava (researches point no 1 – P1), Comuna Balta Doamnei (researches point no 2 – P2), Comuna Corbeanca (researches point no 3 – P3), Braila County (researches point no 4 – P4) and Campulung town (researches point no 5 – P5). In P4 and P5, the products are obtained by H.A.C.C.P. application. Samples taking were effectuated according to actual standard, from each researches point, sampling 30 units in summer season. For microbiological quality was effectuated the following determinations: testing for presence and counting of Colliforms bacteria and *Escherichia coli* species [1,2,3]. The steps of used methods were: decimal dilutions realization, inseminate them in enrichment mediums, isolating, incubating at characteristic parameters for each species and confirmation from characteristic biochemical tests [1,2,3]. The identification at the presence and number of positive coagulated staphylococcus was made by the character of them to form typical colonies on surface of selective culture mediums and positive coagulating test (which is principal criteria for enterotoxicity appreciation).

The identification and number of Salmonella bacteria was made by inseminate them in specifically mediums and numbering the developed colonies [4.5].
The identification of leavens and mildews, numbers of them was made by culture of inoculums in specific medium, incubation and numbering the developed colonies.

3. Results and discussion

In table 1 is presented the testing observed difference between samples points, from contaminating with coliforms bacteria point of view.

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Table 1. Signification testing of observed differences between samples points for microbiological examination of the finite product, in summer season, for coliform bacteria

Comparison of samples points	Student value calculated	Student value table			
		$t_{0.05}$	$t_{0.01}$	$t_{0.001}$	$t_{0.2}$
P1-P2	0.5970^{NS}	2.002	2.66	3.46	1.296
P1-P3	1.2567^{NS}				
P1-P4	1.8696^{NS}				
P1-P5	1.9828^{NS}				
P2-P3	1.7799^{NS}				
P2-P4	1.1075^{NS}				
P2-P5	1.1909^{NS}				
P3-P4	3.1931**				
P3-P5	3.3379**				
P4-P5	0.0668^{NS}				

Table 2. Signification testing of observed differences between samples points for microbiological exam of the finite product, in summer season, for Scp

Comparison of samples points	Student value calculated	Student value table			
		$t_{0,05}$	$t_{0,01}$	$t_{0,001}$	$t_{0,2}$
P1-P2	0.4972^{NS}	2.002	2.66	3.46	1.296
P1-P3	0.4860^{NS}				
P1-P4	5.2976***				
P1-P5	6.4038***				
P2-P3	0.9479^{NS}				
P2-P4	5.8722***				
P2-P5	7.0856***				
P3-P4	4.5634***				
P3-P5	5.5264***				
P4-P5	0.6340^{NS}				

Table 3. Signification testing of observed differences between samples points for microbiological exam of the finite product, in summer season, for leavens and mildews

Comparison of samples points	Student value calculated	Student value table			
		$t_{0.05}$	$t_{0.01}$	$t_{0.001}$	$t_{0.2}$
P1-P2	0.1163^{NS}	2.002	2.66	3.46	1.296
P1-P3	0.4808^{NS}				
P1-P4	7.0244***				
P1-P5	8.6933***				
P2-P3	0.5510^{NS}				
P2-P4	6.1108***				
P2-P5	7.4105***				
P3-P4	7.1597***				
P3-P5	8.6877***				
P4-P5	1.1094^{NS}				

From table 1 it can observe that between P3 and other samples points existed distinction differences concerning coliformes bacteria contamination. So, for combination P3-P4 was registered 3.19311 Student test value and for combination P3-P5 was registered 3.3379 Student test value (P4 and P5 were points which are

implemented the HACCP technology). Between the other working points aren't registered distinct differences.

In table 2 is presented the testing observed difference between samples points, from contaminating with positive coagulating staphylococcus point of view.

From table 2 we observed that is the distinct differences between P1, p2, P3 and other working points, with 99% probability concerning the contamination with positive coagulating staphylococcus. So, for combination P1-P4 was registered 5.2976 Student test value and for combination P1-P5 is 6.4038, for P2-P4 is 5.8722, for P2-P5 is 7.0856, for P3-P4 is 4.5634 and for P3-P5 is 5.5264. Between the other working points aren't registered distinct differences.

In table 3 is presented the testing observed difference between samples points, from contaminating with leavens and mildews point of view.

From table 3 we observed that is the distinct differences between P1, p2, P3 and other working points, with 99% probability concerning the contamination with leavens and mildwes. So, for combination P1-P4 was registered 7.0244 Student test value and for combination P1-P5 is 8.6933, for P2-P4 is 6.1108, for P2-P5 is 7.4105, for P3-P4 is 7.1597 and for P3-P5 is 8.6877. Between the other working points aren't registered distinct differences.

4. Conclusions

Between P3 and other samples points existed distinction differences concerning coliformes bacteria contamination. Between the other working points aren't registered distinct differences. The identification of coliforms bacteria from food offer the information regarding the hygienically conditions where obtained thus product. For this reason we recommend that must be review the existing normative concerning the coliforms bacteria.

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We observed that is the distinct differences between P1, p2, P3 and other working points, with 99% probability concerning the contamination with leavens and mildwes. Between the other working points aren't registered distinct differences.

We recommend:

a) Implementing of quality systems for food: HACCP, GMP and $SSOP_S$ (obligatory in EU laws);

b) Checking to delivery if are respected the hygiene condition for obtain the raw material;

c) The transport of the raw material must be made in optimal condition for temperature and hygiene;

d) Control for raw material at the reception, according to valid laws, especially for microbiological parameters;

e) Analyzes must be made only in specialized labs;

f) Assurance of the rational technological flow, with separating for the dirty areas (raw material reception, raw milk storage, washing) to clean areas (producing areas, pasteurized milk area, maturation area, etc.);

g) Respect of the correct technologies for the finite product especially regarding pasteurized and storage parameters;

h) Supplied with separated hygienically flow for raw milk, pasteurized milk and starter cultures;

i) Use of the hygienically packing devices;

j) Instruction and qualification of employers by organizing the specialized courses (it is necessary that employers to understand the importance of hygiene for human health).

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