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Research Article

Microbiological Evaluation of Yogurt Market in Tirana

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Keywords: Enterobacteriaceae, microorganism, yogurt, market, hygiene.

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Abstract

Yogurt is a food product of our tables since antiquity, he has an important role in the diet since it has high protein value. Recent years in our country traditional production of yogurt is replaced by industrial production conditions. Therefore, this study was conducted to determine the presence of microorganisms (Enterobacteriaceae) in industrial yogurt in Tirana market. A total of 110 samples were tested cream from different companies, 35 samples tested positive. The samples were taken spontaneous in Tirana market and after analyzed at Food Safety and Veterinary Institute (FSVI). Testing was conducted using a standard method ISO 21528-2: 2004.

1. Introduction

Yogurt is a fermented dairy product known and appreciated for its beneficial effects on the health of consumers (Adolfsson O., et al., (2004). Enterobacteriaceae family includes a great variety of gram negative non-spore-forming typical anaerobic optional. The average size of 3 x 0.5 microns with very variable length, from very short form, by filamentous forms. May be mobile for peritrichous flagella and produce capsules. Members of this family have been responsible for a number of diseases which are food-borne (Chandan R.C., et al., (2006).

Our study aims to determine presence of the Enterobacteriaceae in yogurt produced indusrial market conditions Tirana, Albania.

2. Materials and Methods

In total, 110 samples were taken sour produced industrially by the different companies at random in the market Tirana, during 2014 autumn and spring. All samples taken were transported the boxes 4^{o}C refrigerator temperature in fresh environment, laboratory of the Institute of Food Safety and Veterinary (FSVI), which were analyzed for the presence of the Enterobacteriaceae family. The method used is based on the standard method **ISO 21528-2: 2004** for the identification of Enterobacteriaceae in yogurt. Samples taken initially dividing companies. In aseptic using sterile pipette and then inokulojmë 1 ml for each sample. Throw in each petri dish 10 ml of agar heat VRBG selektv advance banjomari 44-47 ^{0}C temperature. The time interval from the moment the ground ngrohim to distribute through the tiles should not be more than 15 minutes. Perform movement careful horizontal slabs in order to mix the best inoculum with the ground and leave to cool, we spend incubated 37 ^{0} C for 24 ± 2 hours, choose to count the plates with two dilutions of a pasnjëshme containing at least from 15 to 300 colony colony tipke. If colonies occupy less than half of the surface of the platter, then counting the area becomes clearer. Calculating the number of microorganisms present in the sample, it was conducted by conducting successive decimal dilutions. Colonies typically take red to pink or purple (with or without ring opaleshente).

3. Results and Discussions

The results obtained by microbiological examination for the presence of Enterobacteriaceae 110 samples taken randomly in Tirana market are presented in (Table 1).

Months	No. Of Samples	Positive for Enterobacteriaceae	Average Values
February	20	0	-
Mars	21	0	-
April	24	10	$3.5x10^3$ CFU/m
May	21	14	$2.8x10^3$ CFU/m
June	24	11	$4.2x10^3$ CFU/m

Table N_0 1: The logarithmic number *(log_{10})* of detected microorganisms from yogurt sample *(cfu/ml)*

In February the samples taken proved negative for the presence of Enterobacteriaceae, in testing done according to ISO 21528-2: 2004 performed at Food Safety and Veterinary Institute (FSVI). We managed to count less than 300 colonies in 10^1 dilutions, this reading is taken as negative. Counting values in May and June were higher than in February, March and April. The average value of the load for May was $2.8x10^3$ *cfu/ml* which shows that we have a substantial microbial load. These values obtained are result of a not good hygiene in processing but also in the conservation of the product. In June, there were sold samples taken fresh environments.

According to some data these the results are also seen in other studies. According to studies conducted by Carkioglu in Ankara and in Libya Al-Diasty their average load was higher than our results, ($5.7x10^{-3}$ *cfu/ml*) (Yldez, F. (2009); Tamine A. Y., et al (2004). These high values indicate microbial enterobakterev pranene of contamination as a result of the raw material of this product that is milk.

4. Conclusions

Yogurt samples taken at the Tirana market led to a significant presence of Enterobacteriaceae, which show a risk to consumer health. The presence of these microorganisms comes as a result of poor hygiene standards in the production process and manipulation with hands as possible carriers of Enterobacteriaceae and their subgroups. Observations from this study suggest post-production contamination given that control samples had results without contaminants. This poses a danger to public health.

References

1. Adolfsson O., Meydani Sn., Russell Rm. (2004). Yoghurt and gut function. Am. J. Clin. Nutr., 80:245-256.
2. Chandan R.C., White C.H., Kilara A. and Hui.Y.H. (2006). Manufacturing Yogurt and Fermented Milks. Blackwell Publishing.
3. Microbiology of food and animal feeding stuffs-Horizontal methods for the detection and enumeration of Enterobacteriaceae –Part 2: Colony –count method **(ISO 21528-2:2004. IDT).**
4. Tamine Ay, Robinson K (2004). Yoghurt. Science and Technology. Published by Institute of Applied Science. pp. 32-56.
5. Yldez, F. (2009). Development and manufactures of Yogurt and other functional dairy product CRC, pp. 451.