

RESEARCH ARTICLE



The Search for the Enterobacteriaceae in Yogurt Produced at Industrial Production

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Abstract

Yogurt is one of the best products of milk. It is easy and digestible for the body human. Microbiological quality of milk and other dairy products is influenced by the initial flora of untreated milk, processing conditions, and pollution from its treatment after thermal processing. Production modern yogurt, the milk main fallout, usually requires special attention to its quality of receipt, processing up to the benefit of the final product. Attention is usually from air pollution during the process of fermentation and packaging stage. Bacteriological analysis are critical for assessing the quality and safety of yogurt produced industrially. One of the pollutants of this product are Enterobacteriaceae, therefore the aim of this study is the identification of these microorganisms in yogurt samples taken in Tirana market conditions. Total of 240 samples were tested yogurt of four different companies during the period December 2013 - September 2014. The samples were spontaneous market from Tirana city and their analysis was near Food Safety and Veterinary Institute (FSVI). Testing was conducted using the standard method **ISO 21528-2: 2004**. From the analysis of 240 samples (four companies), 83 of them resulted positive for the presence of Enterobacteriaceae, which were counted > 300 colonies. All cases positive were analyzed again for the presence of *Escherichia coli* (E. Coli) and using by standard technique ISO 7251-2005. These samples resulted negative for presence E. coli.

Keywords: Enterobacteriaceae, yogurt, hygiene, milk, E.Coli.

1. Introduction

Yogurt plays a major role in the Mediterranean diet. Yogurt is a dairy product, but basically fermenter and a typical taste. Lactic acid fermentation is the one that makes it, by lowering the pH of the milk proteins operates and gives the characteristic taste of yogurt [1, 12]. The first products of the fermentation milk have strands in Asia, Africa, the Middle East and North and then in Eastern Europe. The yogurt is a product of numerous fermenter calorie, high nutritional value and easily digested. It is one of the most important by products and consumed in our country and worldwide. To obtain a more nutritious yogurt as always must have a milk less burdened by pollutants like as bacteria different coming by air and water environment [2, 4, 7, 8]. Enterobacteriaceae family is a large group, they belong to Gram-negative non-spore-forming, facultative anaerobic and 1-5 Pm length, which are often used in food as an indicator for assessing

indicators of overall hygiene food products. Members of this family are widely distributed, although some of these lines are less harmful, such as strains of E. coli, other pathogens are also important for human and animals. Members of this family are responsible for some diseases which originate from food [11]. The aim of this study is to determine levels of the Enterobacteriaceae family in samples of yogurt in Tirana market.

2. Material and Methods

In total 240 samples were taken cream produced industrially from four different companies at spontaneous in Tirana market, during at the period December 2013 - September 2014. Each company was describe by letters. Company A included 62 samples, company B with 59 samples, company C with 64 samples and company D with 58 samples yogurt. All samples taken were transported the boxes 4°C refrigerator temperature in fresh environment,

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laboratory of the Institute of Food Safety and Veterinary (FSVI), which were analyzed for the presence of the Enterobacteriaceae family. All the samples were 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 inoculate with 1 ml for each sample. For each petri dish, we taken 10 ml of agar heat selective (VRBG) in bagnetaria with 44-47 °C temperature. Perform horizontal movement of petri dish in order to better mix the inoculum with the ground and leave to cool. This passed to incubated for 37 °C for 24 ± 2 hours. These were selected for counting petri with two dilutions which contain the 15 to 300 colonies typical colony. 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). Typical colonies obtained by a epruette with ground loop passed selection for E.Coli (Lauryl Sulfate Broth). The epruette obtained in bagnetarii or thermostat and set at 44 °C a temperature for 24 ± 2 hours. If no

gas formation is observed, up to 48 hours left. Of each tube obtained where gas is formed through a deal Take with loop the material and inoculated into peptone epruette containing water heated to 44°C advance. Obtained tubes placed in the temperature 44 °C, 48 ± 2 hours. The red ring indicates the presence of indole in pipes (epruette positive).

3. Results and Discussion

In total 240 samples taken spontaneously from four companies in Tirana market. Of these 83 samples proved positive in four of the companies taken for examination. 62 samples taken from the company's. first company A resulted with 28 samples positive, company B with 59 yogurt samples in total from them resulted 10 samples tested positive. Company C with 64 samples resulted in 33 positive samples and 58 samples company D with 12 samples tested positive sour. Company A resulted in an average load 3.5×10^{-3} kol / gr, where the initial dilution were seen over 300 typical Enterobacteriaceae colony, where 45.1% tested positive samples. Company B of which resulted in 10 positive samples with average load are 2.8×10^{-3} kol / g, 17% of 59 samples taken tested positive by this company (Table 1).

Table 1. Positive samples expressed in %

<i>Companies</i>	<i>Nr. of total samples</i>	<i>Positive samples</i>	<i>Percent (%)</i>
A	62	28	45.1 %
B	59	10	17 %
C	64	33	51.5 %
D	58	12	20.6 %

According some studies by Carkioğlu in Ankara and in Libya El-Diasty to compared with our results, that the average load was much higher than our results, (5.7×10^{-3} col/gr) [2, 5, 10]. These results obtained by the companies showed that we are dealing with incorrect hygiene quality. Quality yogurt take from some companies, resulting in considerable microbial load. The presence of colonies that family came as a result of contamination in the first product, it came due to of hygiene dishes, equipment and their packaging. In this way the fermentation process can be controlled by increasing product quality [3, 5, 9].

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 potential carriers of Enterobacteriaceae and their subgroups. Another reason is bad hygiene to keeping the milk, and processing do not in the first of treatment production at the temperature 85-90 °C. Pasteurization is the most important step for the health customer.

5. References

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