Characterization of Homemade Vanilla Ice Cream

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ABSTRACT
The aim of this work was to achieve a screening on organoleptic and sensory characteristics, physico-chemical properties, microbial load and degree of contamination with heavy metals and arsenic of homemade vanilla ice cream. Total solids ranged between 31.69% and 32.16%, all samples showing values below the 33% minimum eligibility. Regarding the titratable acidity of the analyzed samples, they were within the legislative norms in force, showing values below 24°T. Also, analyzed ice cream samples showed no microbial loads or contamination with heavy metals or arsenic.

Keywords: admissible limits, ice cream, physico-chemical quality.

INTRODUCTION
By its composition, ice cream contains a balanced proportion of all substances needed by the human body. In the milk-base ice cream are found all milk constituents in a concentrated form and at the same time, easily digestible, thanks to the structure achieved during high-pressure homogenization process (Marshall, 2003). Having an agreeable presentation, from the point of view of the consumer, ice cream is recommended for children due to its high content in protein, calcium and phosphorus (Homayouni, 2008; Hwang, 2009).

AIMS AND OBJECTIVES
The research aims the quality evaluation of homemade vanilla ice cream. There were determined the sensorial, physico-chemical and microbiological characteristics and the degree of contamination of the homemade ice cream samples.

MATERIALS AND METHODS
In order to achieve the experimental part were analyzed samples of homemade vanilla ice cream, for six weeks consecutively (in the freezer at -18ºC). The samples were analyzed from the organoleptic point of view, aiming the structure and consistency, color, taste and flavor. Total solids values were determined by the oven drying method, and the values for titratable acidity by titration with sodium hydroxide, until the appearance of a pink color that persists 1 minute. From the bacteriological point of view it was determined the total number of bacteria, coliforms, Escherichia coli, Salmonella and coagulase-positive staphylococci. Heavy metals (Pb, Cd, As) were determined by atomic absorption spectrometry.

RESULTS AND DISCUSSION
All analyzed ice cream samples were consistent with accepted legal norms (STAS 2444-88), from the organoleptic point of view. Results of physico-chemical and microbiological examination are presented in the following figures and tables.

For analyzed homemade vanilla ice cream samples, total solids were not according to the regulations in force (minimum 33%), all samples showing values below the minimum limit of 33% of admissibility (figure 1), while values recorded
for titratable acidity did not exceed standards (maximum 24ºT) (figure 2).

From the microbiological point of view, all analyzed ice cream samples corresponded to microbiological conditions imposed by legislation (STAS 6349-83 and OMS 611-1995) (table 1). Also, ice cream samples contain no lead, cadmium or arsenic (table 2).

**CONCLUSION**

Quality and sanitation study of homemade vanilla ice cream highlighted the following conclusions:
- all analyzed samples were consistent in terms of organoleptic (sensory) conditions of regulations;
- total solids content was not in accordance with regulations, but the differences were not significant;
- titratable acidity values were within the requirements in force;
- bacteriological standpoint of all analyzed homemade vanilla ice cream samples have met the regulations in force and showed no contamination with heavy metals.

**REFERENCES**