ABSTRACT

Products that contain both probiotics and prebiotics are known as symbiotic, these products are able to modify the composition of the internal microflora, with the beneficial effects on the human body. The objective followed in this study was the obtaining of probiotic yogurt in which inulin is added. The control consists in an organoleptic examination, a physicochemical examination and monitoring of the evolution of bifidobacteria. The results obtained showed a progressive evolution by addition of inulin. The highest difference was recorded for yogurt type 3 with an addition of 3% inulin, the number of bifidobacteria increased with $1.04 \times 10^9$ cfu/g in only 7 days, reaching $1.30 \times 10^9$ cfu/g.

Keywords: yogurt, probiotic, Bifidobacterium bifidus, inulin, functional product.

INTRODUCTION

Yogurt is considered functional food; it is an important source of calcium, essential for the prevention of osteoporosis. The health benefits of yogurt were attributed to probiotics, and prebiotics by changing microflora composition in colon, so that beneficial bacteria to the body become prevalent (Costin, 2007). B. bifidus helps the gastrointestinal tract function better since it is part of the microflora. This reduces the chances of acute diarrhea and even helps fight E. coli infections. Role of the probiotics, mainly, the strains of Lactobacillus and Bifidobacterium, are used for prevention and treatment of gastrointestinal infections being increasingly investigated as a complement or an alternative to antibiotic use, with potential to reduce the use of antibiotics (Caballero et al., 2003).

Probiotics are resistant to digestion and absorption in the human body. Oligosaccharides and acidifying substances (organic acids and mineral acids) are part of the prebiotics group. The use of oligosaccharides as prebiotic represents an interesting way of handling the intestinal flora and monogastric metabolism without using antibiotics (Stephen, 2007).

AIMS AND OBJECTIVES

In order to characterize the new product, several organoleptic characteristics, physicochemical and the evolution of bifidobacteria was monitored. Three samples of yogurt were taken into study: with the addition of 2% and 3% inulin, which were compared with a control sample without inulin.

MATERIALS AND METHODS

Yogurt preparation: In order to obtain yogurt whole milk was used, following specific technological process assortment (Jimboean et al., 2013). The milk was pasteurized at 95° C in plate heat exchanger and held in the tank for 25 min, cooled to 43° C and inoculated with starter culture of yogurt consisting of Lactobacillus delbrueckii subsp. bulgaricus and Streptococcus salivarius subsp. thermophilus (ABIASA, Spain) and Bifidobacterium bifidus (ABIAS, Spain). Inulin powder was added (Jacob Hooy, Holland)
The results of monitoring the viable counts of *Bifidobacterium bifidus* were expressed in cfu / g and compared with initial viable counts in yogurt sample. Following the addition of inulin, there was a gradual evolution of the number of bifidobacteria in the first 14 days of storage. The highest difference was recorded for Yogurt 3 with the addition of 3% inulin, this sample presents an increase of ~100 cfu /g in just 7 days. At 14 days after obtaining, only from sample with the addition of 2% inulin has been an increase in the number of bacteria and the number of bacteria at day 21 registered a decrease in all samples. Same results were observed by Pop *et al.* (2015).

### RESULTS AND DISCUSSION

In the first day of storage, all samples of yogurt were homogenous, fine, white, uniform, creamy consistency, fragrant, typical to yogurt, sour taste pleasant, well expressed. Fat content from analyzed samples was 3.48% and 3.3% protein. The pH of yogurt from preparation step was 4.35 for Yogurt 1, 4.33 for Yogurt 2, and 4.32 for Yogurt 3.

The dry matter content in the finished product registered the following values: Yogurt 1 12.4%, Yogurt 2 14.1 and Yogurt 3: 14.68%. The values obtained for the other parameters analyzed are shown in Table 1.

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### CONCLUSION

In order to maintain the number of viable cells at a concentration of 10^6 cfu/g (needed concentration in order to be qualified as a probiotic dairy product with health benefits upon the human organism). We can conclude that we can successfully combine a probiotic product with a prebiotic soluble dietary fibre, to get a product in which after 14 days from the procurement, the number of bifidobacteria has increased significantly, ensuring a benefic effect for the intestinal microflora. At 21 days after obtaining the number of bacteria decreased, but remained at a higher number than recommended.

### REFERENCES