DEVELOPMENT AND CHARACTERIZATION OF A EWE'S CREAMY CHEESE WITH AROMATIC PLANTS

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Abstract

This work aimed at developing a new dairy product, made of ewe's milk that cannot be used for making the Serra da Estrela cheese (with Protected Designation of Origin) for not filling the exact specifications. In this way are allied economic with environmental advantages. Because this unusable milk represents economic loss for the producers while at the same time increasing the volume of effluents that need treatment, this alternative usage allies economic with environmental advantages.

A total of 19 samples were produced, and these developed creamy cheeses were evaluated according to formulation and conservation properties, and then submitted to a sensory evaluation and finally analysed in terms of physico-chemical microbiological and nutritional properties. The 19 formulations were tested to optimize formulations that would be acceptable in organoleptic terms as well as conservation capacity, under refrigeration, for an observational period of 3 weeks. This essay allowed selecting 5 versions of the product that showed best conservation capacity, which were then submitted to sensory evaluation. The sensory analyses involved two types of tests: descriptive sensory profile and preference test, and the obtained results allowed selecting the 2 best formulations as those most appreciated and with potential for commercialization: a control cheese and one with oregano, which were then analysed. Microbiological analyses were undertaken to verify if the products met the legally established microbiological limits, namely for assessing the presence of coagulase-positive staphylococci (*Staphylococcus aureus*) and *Escherichia coli*. Moisture, protein, lipids, salt and carbohydrates were analysed by Fourier transform near-infrared (FT-NIR) spectroscopy method and antioxidant activity was evaluated by reaction with the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical.

Chemical composition revealed two similar products, but the sample with oregano had higher antioxidant activity as compared with control (70.96 ± 0.36 and 64.99 ± 2.74 mg/L TE, respectively). From the microbiological point of view both products were considered safe, with values of staphylococci and *E. coli* under the applicable regulation limits. In terms of nutritional value, both sample shave high protein content (11.9 and 11.4 g/100 g, respectively for control and sample with oregano) but also high fat (13.9 and 12.3 g/100 g, respectively for control and sample with oregano) while being low in sugars (3.4 and 3.8 g/100 g), fiber (< 1%) or salt (< 1%). Energy of both samples was found to be 186 kcal/100 g for the control and 172 g/100g for sample with oregano.

In conclusion, in nutritional terms the samples could be considered safe High Protein content foods. Moreover, as dairy products contain almost all the essential nutrients, the developed creamy cheeses should be consumed as part of a balanced diet. Finally, the production of these products allows the utilization of the milk that otherwise would have to be discarded, so bringing economic profit while at the same time minimizing the need to process it as effluent.

Key words: *Antioxidant activity, Nutrition, Safety, Sensory evaluation, Soft cheese.*