CHEMICAL AND MICROBIOLOGICAL CHARACTERIZATION OF SERRA DA ESTRELA CHEESE: A TRADITIONAL PORTUGUESE DAIRY PRODUCT

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Milk and dairy products are an excellent source of well-balanced nutrients with multiple uses as a snack, dessert or food ingredient. Cheese, namely Serra Estrela (SE) cheese, a traditional variety manufactured in the center region of Portugal, is part of the mankind´s ancient cultural heritage, made from raw sheep milk it is assumed as an iconic gourmet cheese, when compared with other Portuguese cheeses.
This work intended to monitor the manufacturing process along the period of production, to evaluate the factors that are decisive for the reproducibility of SE cheese in geographical and temporal terms, as well as to achieve the knowledge of the SE cheese lipid nutritional characteristics. With the approach undertaken, we are also promoting future work with a broader evaluation of the multifactorial causes that contribute to the diversity of organoleptic and yield characteristics of SE cheese, as well as to the chemical analysis of this cheese. Cheeses originating from representative dairy farm producers, were analysed for their nutritional characteristics, such as moisture, fat, protein and salt, using the FTNIR technique as an expeditious method. In all the cheeses studied, the moisture varied from 42% to 53%, the butyric content between 19.6 and 33.3%, the protein content between 18.6 and 26.7% and the salt between 0.7 and 2.2%.
Considering that the microbiological evaluation is one of the mandatory parameters for the certification of cheese made from raw milk, *Escherichia coli* and *Staphylococcus* coagulase positive determinations were carried out. *Listeria monocytogenes* and *Salmonella* spp determinations were also performed. It was found that some cheeses exceeded the maximum allowed values of microorganisms.
Also, the evolution of the lipid fraction, namely unsaturated fatty acids such as monounsaturated and polyunsaturated (omega 3 fatty acids and omega 6 fatty acids), was evaluated for a period of 9 months. Chemically it was possible to verify differences in terms of lipids constitution between the analysed samples. SE cheese was characterized by a relatively high content of monounsaturated fatty acid (MUFA) and the evaluation of the lipid profile of SE cheese allowed possible future work in determining bioactive lipid compounds with possible health promoting functions.

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