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SIMPLE SCIENTIFIC-MOLECULAR STRATEGY TO STANDARDIZE AND GUARANTEE THE SAFETY OF ARTISANAL CHEESE PRODUCED IN BRAZIL

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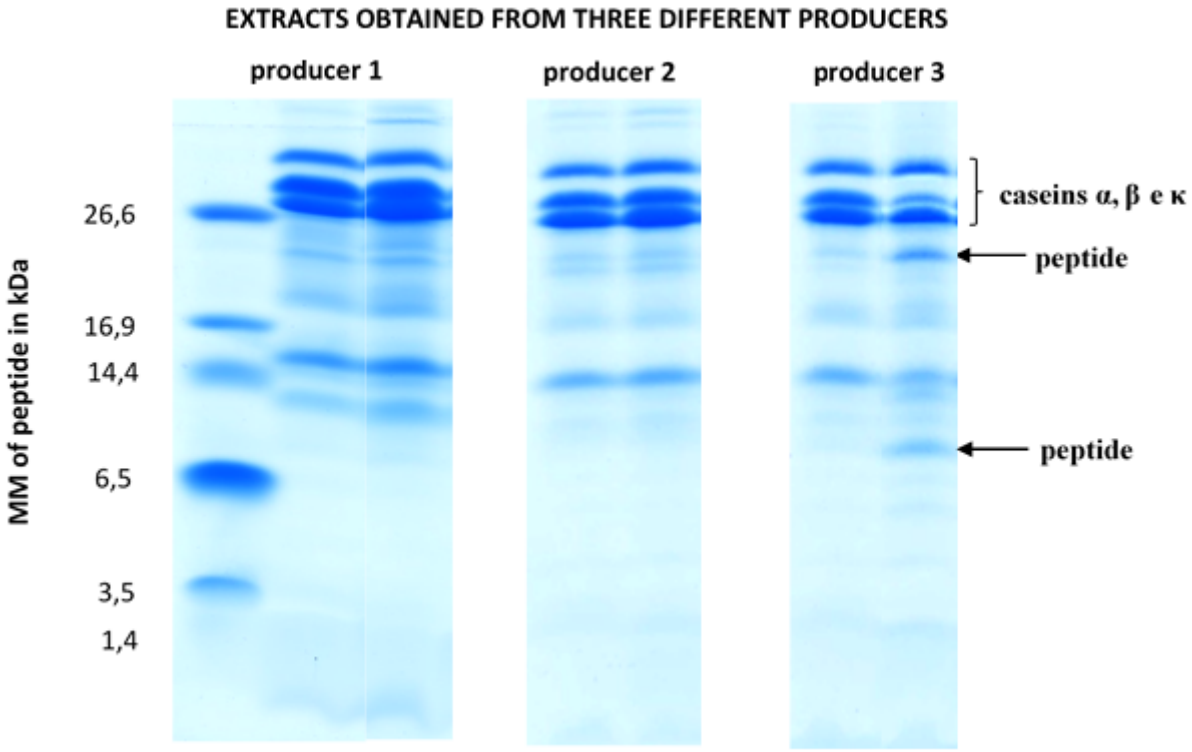
Biography:
The author has a degree in Pharmacy from the Federal University of Rio de Janeiro (1977), a master's degree in Biochemistry from the Federal University of Rio de Janeiro / Brazil-Germany (1983) and a PhD in Biochemistry from the Federal University of Rio de Janeiro. of Rio de Janeiro (1995). She is currently a researcher at EMPRESA BRASILEIRA DE PESQUISA AGROPECUARIA, where she has been working in the field of research since 1978. Her first 15 years of research was in the field of biochemistry of microorganisms, with emphasis on nitrogen fixing bacteria, implementing scientific strategies for the contribution of microorganisms in the growth of food in the class of legumes (beans and soya) not legumes (sugar cane, maize and cassava). In the last 20 years, she has developed mainly researches in the field of food science with emphasis on the molecular modifications of protein foods subjected to thermal, chemical and fermentative processing. He has knowledge of SDS-PAGE electrophoresis, TRIS-TRICINA and two-dimensional electrophoresis. He is also active in the field of immunochemistry. It has had 40 publications in international research over the years and 4 of them in the last five years.

In the state of Minas Gerais (Brazil) there are approximately 30 thousand producers of artisanal cheese. The production of this cheese, called "Minas", is associated with a very important economic factor, since many family farmers have such a cheese as the main source of their income. However, this process is empirical and requires standardization of the product in order to attest cheese its quality and safety. In this work it is utilized a scientific-molecular technique of protein analysis to monitor the degree of casein hydrolysis. The aim of this work was to offer a strategy for the molecular analysis of polypeptide chains in artisanal cheeses. For the technical analysis of proteins, the well-established electrophoresis method (TRIS / TRICIN) was used for concomitant protein and peptide determinations, being simpler than many chromatographic methods. Regarding the obtained protein extract, the association of lyophilization with solubilization of the dried sample with a buffer was applied. This represents a new strategy for molecular protein analysis. The method deals with the direct solubilization of lyophilized cheese in electrophoretic buffer followed by low temperature submission to defat the material. Two mg of lyophilized cheese were solubilized in electrophoretic buffer and submitted about 4h at -23°C. After centrifugation (5,000 rpm; 2 minutes) 30 µL aliquot of the defatted cheese extract was applied on electrophoresis gel. The results revealed the integrity of casein in the polyacrylamide gels observed after staining with Coomassie Blue. The clear image of polyacrilamide gels permitted an excellent visualization of casein bands (α, β and K). From now on, this analytical procedure can be used to detect molecular modifications of the protein profile resulting from casein degradation. In this work, it was utilized cheese from three different producers (called 1, 2 and 3). This proposed method can be recommended for the control of the whole process of cheese maturation due to its facility in showing simultaneously in the polyacrylamide gel image, the three different caseins and the low molecular weight peptides.


EXTRACTS OBTAINED FROM THREE DIFFERENT PRODUCERS
producer 1
producer 2
producer 3
MM of peptide in kDa
26,6
16,9
14,4
6,5
3,5
1,4
caseins α, β e κ
peptide
peptide

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Book of abstracts

This book contains the abstracts of all presentations that have been given and all posters that have been shown.

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