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Protein breakdown, evaluation of peptide and aminoacid profiles of cheese during ripening

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Proteolysis is one of the most important biochemical events that occur during ripening. The hydrolysis of intact caseins into peptides and free amino acids is one of the driving forces for changes in biochemical and functional characteristics of cheeses during ripening. Proteolysis in cheeses leads to the production of a wide range of peptides of different sizes and a pool of free amino acids, the concentration of which depends on the cheese variety. The concentration of amino acids in cheese at a given stage of ripening is the net result of the liberation of amino acids from the caseins by proteolysis and their catabolism or transformation into other amino acids by the cheese microflora. The starter is the principal source of peptidases in cheese which are responsible for the hydrolysis of short peptides and the liberation of amino acids. Amino acids and small peptides were hypothesized to be mainly responsible for the basic taste of cheese. The breakdown of para-case to amino acids and peptides by a combined action of chymosin and proteinases and/or peptidases of the starter bacteria is generally considered to be the most important aspect of cheese ripening. The peptides and the amino acids released also contribute to and act as precursors for flavor development in cheese. There are a number of different pathways for amino acid catabolism with each pathway producing different compounds. The pattern of proteolysis (i.e., the relative concentrations of different peptides and amino acids) is very variable and is essentially unique to a particular variety. In conclusion, it is of great importance to the cheese industry to be able to predict and control and particularly accelerate the primary proteolysis or the breakdown of the caseins into peptides and the secondary proteolysis of the peptides by the starter culture enzymes into smaller peptides and free amino acids.

Biography

Erhan Sulejmani has completed his PhD at the Faculty of Technology and Metallurgy, University Ss Cyril and Methodius in Skopje, Macedonia. He is the Head of Department and Head of the Laboratory at Faculty of Food Technology and Nutrition, State University of Tetova, Macedonia. He published approximately 20 scientific papers, 5 book chapters, edited two books and supervised many master students and is currently working as a Research Scientist and Lecturer in the fields of Dairy technology, Cheese Chemistry and Conservation Processes at the State University of Tetova.

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