

**Keywords** Casein; SCC; Mastitis; Electrophoresis

## Abbreviations

SCC: Somatic Cell Count; TN: Total Nitrogen; NCN: Noncasein Nitrogen Content; CP: Crude Protein; SN: Soluble Nitrogen; NPN: Non-Protein Nitrogen; CN: Casein Nitrogen; TP: True Protein; SP: Soluble Protein; -CN: -Casein; -CN: -Casein; -CN: -Casein; TA: Titratable Acidity; La: -Lactalbumin; -Lg: -Lactoglobulin

## Introduction

Caseins are milk proteins secreted by cells of the mammary gland. They constitute approximately 78-82% of bovine milk proteins and are divided into four main groups:  $\alpha_1$ -casein,  $\alpha_2$ -casein,  $\beta$ -casein and  $\kappa$ -casein, forming supramolecular structures known as micelles [1,2]. The protein composition of cow's milk is an important factor for the profitability of the dairy industry. An increase in the proportion of casein, in particular  $\beta$ - and  $\kappa$ -CN, results in better product yield, especially in cheese [3]. The caseins are phosphoproteins containing a variable number of phosphate radicals linked to serine (P-Se) and are concentrated in different regions of polypeptide chains. Based on the location of these phosphate radicals, the resulting molecule regions are more hydrophilic or more hydrophobic, and consequently, the caseins are more susceptible to proteolysis.

Proteolysis in milk is an important quality criterion that can have beneficial or detrimental effects, depending on processing. Milk protein proteolysis can be attributed to both indigenous proteases and also proteases produced by psychrotrophic bacteria during the

[1,2]. Proteases

indigenous milk proteinase plasmin, which is associated primarily with the casein micelles [23], where it is capable of hydrolysing all caseins except  $\kappa$ -casein [24-26], in which contributes to increased susceptibility to defects in dairy products such as technological problems related to proteolytic enzymes include the gelling of UHT milk (Ultra High Temperature) [27,28], generation of free amino acids during cheese ripening and development of undesirable flavors and a bitter taste in milk and dairy products [29,30]. Even

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