

Mozzarella Cheese: Impact of Milling pH on Chemical Composition and Proteolysis

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The objective of this study was to determine the impact of milling pH on initial chemical composition and proteolytic changes in Mozzarella cheese during refrigerated storage. A new pilot-scale Mozzarella cheese-making method without brine salting was developed to produce cheese with homogeneous chemical composition within and among vats. Three milling pH (5.10, 5.25, and 5.40) were used to make three vats of cheese in 1 d. Cheese making was replicated on 3 d, on which the order of cheese making for each pH was selected so that effects of day and order of cheese making were blocks in a 3 x 3 Latin square design.

Milling pH affected cheese pH and titratable acidity. However, the initial chemical composition (i.e., moisture, fat, and protein) and amounts of nitrogen soluble in 12% TCA and in pH 4.6 acetate buffer were unaffected by differences in milling pH. During 50 d of refrigerated storage, differences in cheese pH among treatments were unchanged, the amount of nitrogen soluble in TCA and in acetate buffer increased, the amount of residual intact α_s -casein decreased, and the amount of intact β -casein remained constant.

Proteolysis during refrigerated storage was unaffected by differences in milling pH.

Key Words: Mozzarella cheese • milling pH • composition • proteolysis

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