

Proteolysis and Rheology of Low Fat and Full Fat Mozzarella Cheeses Prepared from Homogenized Milk

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The rheological and proteolytic characteristics of low fat and full fat Mozzarella cheeses made from milk homogenized at 10,300 and 17,200 kPa were compared with those of cheeses prepared from nonhomogenized milk. Half of the samples were cooked at 45.9° C and half at 32.4° C; the lower temperature resulted in higher moisture in nonfat substance. α_{s1} -Casein partially degraded to α_{s1} -I-casein in the cheeses cooked at the lower temperature during 6 wk of refrigerated storage. Except for the 17,200-kPa cheese, proteolysis was dependent on moisture in nonfat substance. Hardness increased with homogenization pressure and decreased with fat percentage and moisture in nonfat substance. Meltability was aided by storage and hindered by fat reduction, higher cooking temperature, and homogenization. Storage modulus decreased during storage and increased with pressure and cooking temperature. A low fat Mozzarella having textural and melting properties comparable with those of a normal high fat cheese can be prepared using homogenized milk, a lower preparation temperature, and refrigerated storage.

Key Words: homogenization • Mozzarella cheese • proteolysis • rheology

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