

Effect of Microfiltration on the Composition and Ripening of Iranian Fetta Cheese

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Abstract : The effect of Microfiltration (MF) on proteolysis, hardness, and flavor of Feta cheese during 6 mo of aging was determined. Raw skim milk was microfiltered two-fold in two cheese making trials. In trial 1, four vats of cheese were made in 1 d using unconcentrated milk (1X), 1.26X, 1.51X, and 1.82X Concentration Factors (CF). Casein-(CN)-to-fat ratio was constant among treatments. Proteolysis during cheese aging decreased with increasing CF due to either limitation of substrate availability for chymosin due to low moisture in the nonfat substance (MNFS), inhibition of chymosin activity by high molecular weight milk serum proteins, such as α 2-macroglobulin, retained in the cheese or low residual chymosin in the cheese. Hardness of fresh cheese increased, and cheese flavor intensity decreased with increasing CF. In trial 2, the 1X and 1.8X CF were compared directly. Changes made in the cheese making procedure for the 1.8X CF (more chymosin and less cooking) increased the MNFS and made proteolysis during aging more comparable for the 1X and 1.8X cheeses. The significant difference in cheese hardness due to CF in trial 1 was eliminated in trial 2. In a triangle test, panelists could not differentiate between the 1X and 1.8X cheeses. Therefore, increasing chymosin and making the composition of the two cheeses more similar allowed production of aged Fetta cheese from milk concentrated up to 1.8X by MF that was not perceived as different from aged feta cheese produced without MF.

Keywords : feta cheese, microfiltration, concentration factor, proteolysis

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