شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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لم ترد بالأصل

IMPROVEMENT OF ULTRAFILTERED FETA CHEESE FACILITATES AS A SPECIAL HEALTHY FOOD

By

AHMED MOHAMED MOHE ELDEIN AZEHARY

B.Sc.Agric. Sc. (Dairy Sc. & Tech.), Fac. of Agric. Cairo Al-Azhar Univ., 2006

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ABSTRACT

Ahmed Mohamed Mohe Eldin Azhart. Improvement of Ultrafiltered Feta Cheese Facilitates As a Special Healthy Food. Unpublished M.Sc. Thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, 2020.

The present study was aimed to experiment the combination between milk fat and NaCl substitution for reducing calories and sodium ion to find out to what extent they would maintain their physical properties and sensory acceptance of cast Feta cheese made using dried milk protein concentrated previously, indeed by the ultrafiltration technique.

Cast Feta cheese, *i.e.* it was filled in the liquid phase before coagulation without whey drainage, whereas skimmed milk powder was arithmetically mixed with dried milk protein concentrate and reconstituted with warm tap water at 45^{o}C providing that the final formulation should be contained the total solids of 21% and12% protein. In the base of full cream Feta cheese, the fat content was adjusted to 16% using butter oil (the control). For other treatments, butter oil was replaced with maltodextrin at the level of nil, 25, 50, 75 or 100%. All formulas were heat treated at 72^{o} C for 2 min., at which they were homogenized at 200 bar then cooled to the suitable renneting temperature (at 40^{o} C). Potassium sorbate was added at the level of 0.015% and salted to 2.5% toble salt (NaCl), whether alone or replaced with KCl at the level of nil, 25, 50 or 75%. Glucono delta lactone was added at the level of 2.5% then rennet solution was added at the rate of 2 ml /10 Kg pre-cheese, which was packaged into plastic containers and incubated at the same temperature for the complete coagulation (within 30 min.). All cheese containers were cold stored at 5±1^{o} C for 3 months.

The results indicated that, although all differences in all cheese criteria were significant, most of which did not explain any clear trending.

The proportional fat replacement with maltodextrin led to gradual reduction in the dry matter (DM) and ash contents of resultant cheese. The repining indices; titratable acidity, water soluble nitrogen (WSN) on total nitrogen (TN) and non-protein nitrogen / TN contents increased as the fat was more replaced. Both of hardness, chewiness and gumminess of cheese increased while cohesiveness decreased by fat replacement. Total bacterial count (TBC) increased while, yeasts and molds (Y&M) count decreased as the fat was replaced by maltodextrin. All judging scores of cheese sensory attributes, especially consistency and flavor were decreased as the fat was replaced more than 75%. The substitution of NaCl with KCl in cheese salting heightened the DM and protein contents. Cheese hardness was weakened while gumminess was strengthened by NaCl replacing with KCl which caused gradual reduction in TBC and Y&M count. Nevertheless, all scores of cheese sensory properties were declined by NaCl substitution more than 50%. During cold storage period (CSP) of cheese both of TA, WSN\TN and NBN\TN contents as well as Y&M count increased while pH value lowered. All rheological texture parameters and organoleptic attributes‘ scores of cheeses decreased by prolonging the CSP but still keeping their acceptable panelist quality until the end of experimental CSP, provided that the level of fat replacement does not exceed 75% and that the level of replacement of sodium chloride does not increase more than 50%.

As a conclusion it could be successfully Feta cheese production with fewer calories and sodium content to meet the needs of some special health purposes while maintaining good chemical, rheological and microbiological properties, provided that the percentage of fat replacement does not exceed 75% and that the percentage of sodium chloride replacement does not exceed 50%.

Key words: Chemical composition, Repining indices, Microbiological quality, Texture profile

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