

COMPARISON OF LARGE AND SMALL-SCALE SEMI-HARD CHEESES

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ABSTRACT

Industrial cheese making technology led to a significant increase in productivity and production. Furthermore, it has also helped the standardization cheeses, considering the composition, food safety status etc., but large-scale cheeses differ in some respects from small-scale cheeses. We investigate the composition, colour and texture of small-scale semi-hard, fatty Trappista cheese during six weeks ripening and we compared to industrial cheese with the same maturation time (6 weeks at 15°C). FoodScan Lab 2 (Foss) for composition, Minolta CR-300 for colour measuring and Brookfield CT3 instruments for texture properties were used and we performed sensory evaluations too. Considering the composition, there were two notable differences as lower relative fat content required in the “fatty” category (44.1 g/100g vs minimum limit of 45g/100g) and slightly high NaCl content (2.29g/100g) of small-scale cheese. Required texture properties of it was reached after three weeks ripening including the formation of required holes are very important in case of round holes cheeses and based on the sensory properties, small-scale cheese was sufficiently ripe. It is also supported by the results of the colour and texture tests. The comparison of industrial and small-scale cheese has yielded partly unexpected results. The holes in industrial cheese were abnormal and did not meet the requirements unlike the perfect small-scale cheese. Abnormal holes may be caused by technical and not microbiological problems, but this properties is extremely important for customers, and because it may also indicate the growth of coliform bacteria. Significant differences were explored in Hardness (2052,1 mN vs 2955,9 mN), Chewiness (3,893 mJ vs 5,678 mJ) and Gumminess (1545 mN vs 2154,8 mN) between industrial and small-scale cheese probably caused higher total solids and lower fat content of small scale cheese. There was no difference in Brightness (L*) and large-scale cheese had significantly but slightly better colour, mainly yellow coordinate (b*, 24,26 vs 24,10) probably due to the use of colorant. Expert judges preferred small-scale cheese (18,7 points vs 17,1 points from max 20) due to the better texture, smell and taste. This investigation points excellent cheeses could be made both in small and large scale but industrial manufacturers with modern technology also need to pay more attention to the perfect structure of semi-hard cheeses.