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PROPERTIES OF UF-FETA LIKE CHEESE AS AFFECTED BY DIFFERENT PRESSURES DURING CONCENTRATION OF MILK

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ABSTRACT

UF-Feta like cheese was made from milk concentrated at four different operational with inlet and outlet pressures of ultrafiltration (UF) technique (1&3, 2&4, 3&5 and 4&6 bar, respectively). The effects of used pressure and storage period up to 45 days on the chemical, microbiological and sensory quality of the produced cheeses were studied. It was found that the chemical composition of the produced cheeses slightly affected by the storage period at ~5°C, as prolonging the storage, the total solids increased slightly. SN, SN/TN% and TVFA content were affected by the pressure and the storage time whereas, they were high either in low or high pressure used in preparing of cheese retentate (T1 and T4). Also, these parameters increased with increasing the storage time. The microbiological data cleared that the coilforms were not detected in all the treatments either when fresh or during the interval storage periods. However, yeasts and moulds appeared in the cheeses after 15 days of storage in a low count and slightly increased during storage time. At the end of storage, the cheeses made from concentrated milk at low or high pressure (T1 and T4) spoiled and were unacceptable organolepically. Also, a significant differences in the flavour, appearance, body and texture of the produced cheeses were observed.

Key wards: UF-Feta like cheese, Ultrafiltration, UF-pressure, storage period.

INTRODUCTION

Feta cheese is one of the most popular, international, white brined cheeses made in many southern European and Middle eastern countries. Today, Feta cheese is the most widely consumed over the entire world compared to the other white brined cheese varieties, Feta cheese has a softer consistency with salty flavour. This type of cheese successfully produced with an industrial scale by ultrfiltration technique (UF). The moisture content of these cheeses is usually higher and the fat contents are lower than those of cheeses made by the traditional techniques due to the high water holding capacity of whey proteins retained in UF-cheeses. With prolonging storage of this cheese, some defects can appear as a results of the storage conditions or different techniques used in making the cheese (El- Abbassy and Shenana, 2001).

Ultrafiltration is the main process for concentrating the milk during making UF- Feta cheese and like products. The chief advantage of using the ultarfilterd milk in cheese making is that whey proteins (~20% of total milk proteins) are incorporated in the curd while in conventional methods they almost lost in the whey. Incorporating of these proteins increases cheese yield, due to the higher moisture level in UF-cheese resulting from the greater water holding capacity (WHC) of whey proteins (Lawrence, 1989). The ultrafiltration has been applied widely for manufacture of soft cheeses such as Feta cheese, also, hard cheese has been made using ultrafilterd milk (Lakhani *et al.*, 1991 and Hydamaka, *et al.*, 2000).

Ultrafiltration is a low pressure-driven mechanical process for separating and concentrating suspended solids, colloids and high