SUMMARY AND CONCLUSION

Cheddar cheese is the principle ingredient in the processed cheese blend. In Egypt the use of imported Cheddar cheese in the manufacture of processed cheese is expensive. So, it was worth while to lower the cost of manfacturing this favorable type of cheese by using a new technique. Introduction of retentates into process cheese making has been explored early. Recently, cheese base was suggested for replacement of Cheddar cheese in processed cheese manufacture.

Therefore, this study was planned to investigate the feasibility of the manufacture of "cheese-base" from ultrafiltrered skimmilk powder to replace natural Cheddar cheese in the processed cheese blend.

The research was carried out in three parts:

Part I: Local and imported processed cheese samples represented 13 variety were randomly collected from the Egyptian market for evaluation. The chemical, physical and bacteriological properties showed great-variations. Correlation coefficient "r" values between texture and melting properties and some parameters of processed cheese were calculated.

Part II: Blends from different proportions of young and mature Cheddar cheese (5 and 10 months' old) were manufactured to processed cheese to select the more suitable blend

2- Cheese-base I and II were stored for 2 weeks at 10°C and tested periodically as they compared with Cheddar cheese. They compared with Cheddar cheese. They were analysed for chemical composition, microbiological quality and evaluated organolyptically as well as protein degradation was followed through ripening.

3- It was found that 2 weeks are enough period for ripening the cheese base.

4- A new processed cheese blends were suggested by replacing young and mature Cheddar cheese with cheese-base I or cheese-base II.

5- The resultant processed cheese were stored at 10, 20 and 30°C and analysed when fresh and after 3 and 6 months.

6- The chemical composition of the processed cheese from different blends showed some variations but all of them lies within the Egyptian legal standards for processed cheese. pH values of different cheeses also lies within the best range suggested for this type of cheese (5.41 to 5.66).

7- The differences in chemical analysis occurred through storage at different temperatures were evaluated statistically.

8- Microbiological properties of processed cheese from different blends showed some variations due to the various

treatments and the storage at different temperatures- Generally, all cheeses considered of good quality and there was no microbiological defects.

9- The physical properties are very important in processed cheese. The oil separation defect was not detected in all tested cheeses. Melting index showed great variations towards the different treatments. Also the penetrometer reading was affected by the composition of the blend as well as the storage period. The consistency of processed cheese was affected by the variations in the blend compsition as well as storage at different temperatures.

10- The texture of the processed cheese was evaluated using the instron machine. From the texture profile, the hardness, cohesiveness, gumminess, springiness, chewiness and adhesiveness were calculated.

11- The colour of processed cheese from different blends was determined spectrophotometrically and expressed as O.D.

12- Analysis of variance (F-test) was carried out for all characteristics between treatments storage time, storage time x storage temperature and treatment x storage time.

13- Statistical analysis showed the correlation coefficients between the physical properties and chemical parameters.

14- Sensory evaluation was done by the panelists and evaluated statistically. The resultant processed cheese from all blends showed an acceptable cheeses and with good keeping quality.

It was concluded that processed cheese can successfully manufacture using the ultrafiltrated skimmilk powder retentate after increasing its protein content and ripening for 2 weeks (cheese-base I) or with the addition of Savorase proteolytic enzyme (cheese-base II) for replacing partially Cheddar cheese up to 75 % without any defects in its chemical, physical, microbiological and organoleptic properties.