



بسم الله الرحمن الرحيم



شبكة المعلومات الجامعية
@ ASUNET



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

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بعض الوثائق الأصلية تالفة

بالرسالة صفحات
لم ترد بالأصل

Studies on low fat cheese

By

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INTRODUCTION

Ras cheese is the most popular hard cheese in Egypt . So it is made in great amount .

The health problems with fat focus on two main issues: too much dietary fat and too much of that fat from animal food sources. Too much fat in the diet will be stored as increasing adipose tissue and body weight . This increased body weight has been associated with health problems such as diabetes, hypertension and heart disease . Also animal fat includes too much saturated fatty acids which are associated with atherosclerosis , that contributes to heart attacks and strokes (Williams , 1985) .

Within the past few years , there has been substantial interest in the development of a new range of dairy products which are similar to the existing products but in which the fat content is substantially reduced . Many efforts have been directed to make a low fat cheese . Some cheese varieties have been made successfully especially soft cheese such as cottage cheese and cream cheese . Several problems are encountered in the production of hard cheese such as Ras cheese from low fat milk . The use of traditional process to manufacture hard cheese from milk of low - fat content results in the production of cheese which lack the full flavour and the desired texture, where it is more firm and less smooth. To overcome the previous problems many methods have been used . Several low - calorie and calorie - free fat replacements and fat substitutes have been used in the manufacture of dairy products such as frozen desserts, yoghurt, cheese spread and cream cheese (Degouy, 1993). Homogenization has been used to decrease the firmness of Cheddar cheese made from ultrafiltered milk . Modification of cheesemaking process have been used to make a good quality low fat Cheddar cheese .

Incorporating of whey proteins into cheese is desirable because they increase the moisture content of cheese and improve the final

cheese quality. Whey proteins could be incorporated into cheese either by heat treatment of milk prior to cheesemaking or by adding the denatured whey protein to the cheese milk prior renneting . The renneting properties of heat treated milk could be restored by adding calcium chloride , raising coagulation temperature and lowering the P^H of milk prior to cheesemaking . Because low fat cheese lacking the typical flavour , the flavour could be intensified by many methods such as adding commercial enzymes , adding cheese slurries , adding cell free extract of lactic acid bacteria , but the most promising method is adding the attenuated lactic acid bacteria especially lactobacilli .

This study is an attempt to make a good quality low fat Ras cheese with minimum modification in the manufacture procedures so any manufacturer could make successfully the low fat Ras cheese . Therefore it has been aimed to study :

- 1 - The effect of milk fat content on Ras cheese quality .
- 2 - The effect of heat treatment of milk prior to cheesemaking on Ras cheese quality .
- 3 - The effect of adding lactobacilli as an adjunct bacteria on the quality of Ras cheese .
- 4 - The effect of heat treatment of the added bacteria on the quality of Ras cheese .

This work will be presented in two parts :

- 1) Effect of heat treatment of cheese milk on low fat Ras cheese quality .
- 2) Effect of adding some attenuated lactobacilli cells on low fat Ras cheese quality.

II LITERATURE REVIEW

2-1 Low fat cheese

2-1-1 Problems associated with fat

Ras cheese is the most popular hard cheese in Egypt . It is bacterially ripened cheese . It had 34 - 40% fat . The health problems with fat focus on two main issues : too much dietary fat and too much of that fat from animal food sources, too much fat in the diet provides excessive kilocalories more than required for immediate energy needs. The excess is stored as increasing adipose tissue and body weight . This increased body weight has been associated with health problems such as diabetes, hypertension and heart disease. Also animal fat include too much saturated fatty acids which are associated with atherosclerosis that contributes to heart attacks and strokes. Fat should be less for the people suffering from diabetes to reduce risks of complications such as cardiovascular disease.No more than 25% or 30% of the total kilocalories should be assigned to fat with less than half of the total fat allowance used as saturated fat (williams .1985) .

2-1-2 Methods of manufacturing low fat cheese

Boer and Nooy (1980), studied various aspects of semi - hard cheese manufacture employing ultrafiltration with particular reference to a low fat (20% fat in DM) variant . The process involves ultrafiltration of skim milk at 55°C to 25.9% T.S , thermal evaporation of the retentate at 50 -60°C to a concentrate with 35.9% T.S(30.7% protein) .

Addition of 80% fat cream , CaCl_2 , NaNO_3 , spices etc. to obtain pre - cheese with 41.3% T.S , and mixing with the incorporation of 0.05% rennet and 0.2% starter concentrate, followed by conventional operations of pressing, acidification , brining and ripening. The