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**Degree: Doctor of Philosophy (Ph.D.)**

**Title of thesis: Influence of Using Kefir Grains as a Starter Culture on Soft Cheese Properties in North Africa.**

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### ABSTRACT

Several approaches have been proposed to improve the quality, safety and productivity of Karish cheese. Nowadays, an upsurge of interest in providing suitable starter culture for cheese production has been observed. In addition to improved quality, enhanced microbiological safety and health benefits, starter cultures have the advantage of offering consistent characteristics to the final products, which is important for commerce.

Kefir cheese is produced through the use of kefir grains, rather than an additional rennet or acid. Kefir is the product of fermentation of milk with kefir grains. It is described as a symbiotic association between lactic and acetic bacteria and yeast. Kefir grains have been used for centuries in many countries as the natural starter.

The part one of study was conducted to evaluate the properties of soft cheese using different levels of kefir starter (1, 1.5, and 2%) with different salting methods (dry, brine and dry brine). The first part of this study showed that the best treatment was 1.5% Kefir with brine salting. Therefore, in the part two of study, a trial was carried out to improve the organoleptic properties of Karish cheese using kefir culture (1.5%) as a starter and compare it to rennet or \ and yoghurt starter . Also, the changes in chemical, microbiological and rheological characteristics were evaluated during the storage period.

Karish cheese samples produced using kefir, kefir plus rennet or kefir plus yoghurt showed the highest numbers of total count and yeast & mold while, Karish cheese produced using rennet or yoghurt starter had the lowest numbers of total bacterial count and yeast & mold. All Karish cheese samples (except rennet cheese) showed the highest lactobacilli and streptococci counts. Texture Profile Analysis (TPA) values increased for all cheese during storage period with the exception of springiness values. The storage period had a significant effect on the texture profiles of the cheeses. Sensory analysis showed significant differences ( $p < 0.05$ ) between treatments. Treatment 6 (1.5% Kefir + 1.5% yoghurt starter (1:1)) recorded the highest degree of flavor, appearance and texture characteristics. Results indicated that using kefir starter increasing shelf life of Karish cheese. Furthermore, improved sensory characteristics.

**Key words:** kefir starter, Kariesh cheese, chemical, microbiological and sensory properties.

## ACKNOWLEDGEMENT

I wish to express my sincere thanks to **Prof. Dr. Hassan Mohammed Sobhy**, Professor and Dean of the Institute of African Research and Studies, Cairo University, for his help, suggestions, kind encouragement and supervision of this thesis.

Deep thanks were accorded to **Prof. Dr. Moneir Mahmoud Ibrahim El-Abd**, Professor of Dairy Science, Faculty of Agriculture, Cairo University, for his supervision, providing help and supporting.

Special thanks to **Dr. Baraka Abo-Elyazeed Abd-Elsalam**, Senior Researcher, Agricultural Research Centre, Food Technology Research Institute, Dairy Department, for her help, suggestions, revising and supervision of this thesis.

Grateful appreciation is also extended to my father, mother, brother, sister and my husband for their endless moral support.

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