

بسم الله الرحمن الرحيم



HOSSAM MAGHRABY



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



HOSSAM MAGHRABY

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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HOSSAM MAGHRABY

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**ROLE OF SOME VEGETABLE OILS IN
MAYONNAISE CHARACTERISTICS**

By

YASSER FEKRY MOHAMED KISHK

B.Sc. (Food Science & Technology), 1991

A Thesis Submitted in Partial Fulfillment

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The Requirements for the Degree of

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In

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Faculty of Agriculture
Ain Shams University*

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YASSER FEKRY MOHAMED KISHK

*B.Sc. (Agric.) Food Science & Technology , 1991
Faculty of Agriculture, Ain Shams University*

Under The Supervision of :

Prof. Dr. Magda H. Allam

*Prof. of Food Science and Technology, Faculty of
Agriculture, Ain Shams University.*

Lecturer, Dr. Mohamed M. Mostafa

*Lecturer of Food Science and Technology, Faculty of
Agriculture, Ain Shams University*



APPROVAL SHEET

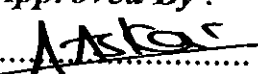
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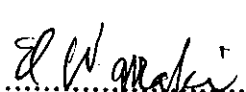
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(Department of Food Science)
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This Thesis For M.Sc. Degree Has Been Approved By :

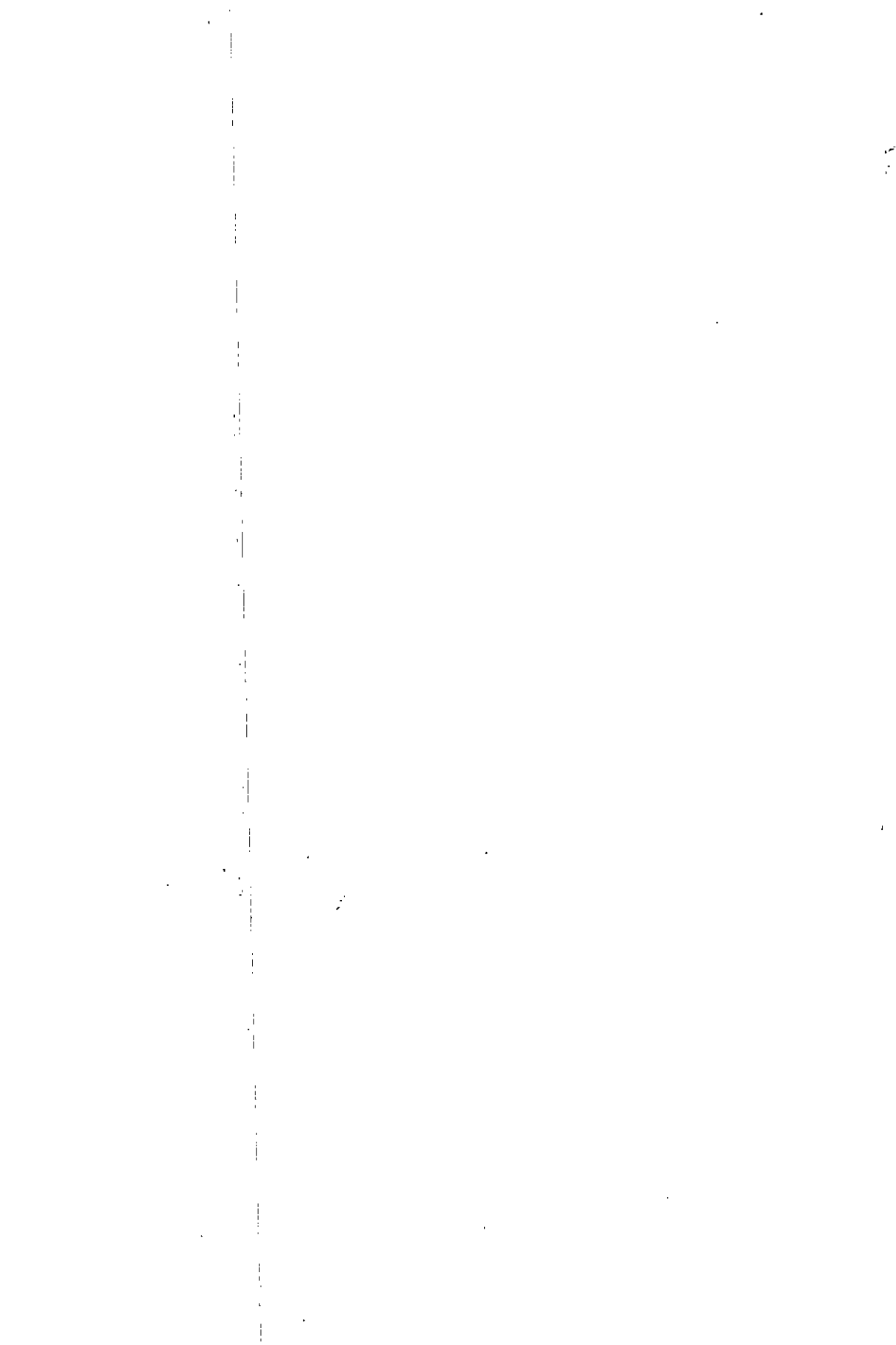
Prof. Dr. Ahmed Abd El- Monem Askar 
Prof of Food Sci. Fac. Agric. Suez Canal Univ.

Prof. Dr. Ahmed Gamal El-Din Elwaraky 
Prof of Food Sci. and Technol., Fac. Agric., Ain Shams Univ.

Prof. Dr. Magda H. Allam 
Prof of Food Sci. and Technol., Fac. Agric., Ain Shams Univ.

(Supervisor)

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ABSTRACT

Yasser Fekry Mohamed Kishk. Role of some vegetable oils in mayonnaise characteristics. Unpublished Master of Science, Ain Shams University, Faculty of Agriculture, Department of Food Science, 1997.

This investigation aimed to study the quality and stability of mayonnaise as affected by nature and amount of used oil as well as storing temperature. Sunflower, corn, olive oils and palm olein were selected for preparing high calorie (70 % oil) and low calorie (40 % oil) mayonnaises. The low caloric products were supplemented by blanched potato purée in order to rigid the high moisture content and providing the suitable consistency. Mayonnaise samples were stored at ambient temperature ($20^{\circ}\text{C} \pm 5$) and refrigerator ($5^{\circ}\text{C} \pm 2$) for 24 weeks, and analyzed at two weeks intervals for their stability rates, extracted lipids characteristics and sensory quality.

Sunflower and corn oil enhanced the stability rate of high calorie mayonnaise obtaining the maximum values at the beginning of storage and during storing period. Olive oil was in the second order. Whilst, using sunflower, corn and olive oils in low calorie mayonnaise were parallel and showed high stability rates. With palm olein, both normal and light mayonnaises had poor stability, they were stable for only 2 weeks or less.

On the other side, mayonnaise which contained olive oil was more sensitive to oxidation followed by sunflower and corn oil samples, while palm olein mayonnaise showed higher oxidative stability. This trend was observed in high and low calorie mayonnaises. However, the oxidative stability of normal samples was overabundance that of light ones at every storage period. Also, cold storage of both mayonnaises

lowered the values of acid, peroxide, anisidine and totox, as well as, decreasing levels of iodine value and changes in fatty acid pattern of extracted lipids to their minimum levels.

Statistical analysis on sensory evaluation, indicated that sunflower and corn oils, when used in high or low calorie mayonnaises, improved their quality characteristics obtaining high scores without significant differences throughout the storage period. The panelists gave preference to sunflower and corn oil mayonnaises stored at refrigerator temperature over the same samples stored at room temperature. Olive oil was also sufficient to give high quality mayonnaise vie with sunflower and corn oil products when incorporated in low calorie one, while, when it was used in high calorie mayonnaise, its quality counterparted those of sunflower and corn oil products till 20 and 18 weeks after emulsion separation when conducted to room and cold storage, respectively. The use of palm olein in mayonnaise reduced its shelf- life to a large extent. The major finding from the obtained data allow as to conclude that the use of sunflower and corn oils were most promising interaction to obtain the maximum scores, followed by olive oil then palm olein.

Key words : High calorie mayonnaise, low caloric mayonnaise, manufacture of mayonnaise, mayonnaise quality, oxidative stability, sensory evaluation, stability rate.